AQA GCSE Chemistry | 8462

SPECIFICATION POINT 4.3.2.5

Concentration of solutions

Past-paper questions

Tier	**Foundation**
Question groups	**11**
Available paper years	**2007–2025**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

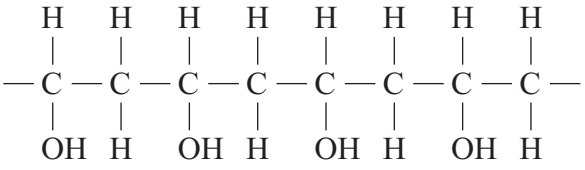
Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

4.3.2.5 Concentration of solutions

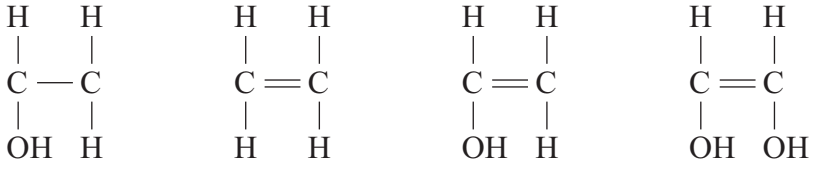
Question 01 June 2007 | CHY1B | Original Q9 | Legacy

QUESTION NINE

Poly(vinyl alcohol) has this structure:



9A The monomer from which poly(vinyl alcohol) is made can be represented by . . .



1 **2** **3** **4**

Poly(vinyl alcohol) reacts with a solution of sodium borate to form 'slime'.
Slime can be fluid or, when almost solid, it can retain its shape.

A student measured the relationship between the spread of a lump of slime and the concentration of the sodium borate solution used to make it.
She called this 'the slump test'.

The student followed this procedure:

- make a sample of slime using 50 cm^3 of 4 % poly(vinyl alcohol) solution and 5 cm^3 of a 1 % solution of sodium borate
- stir the mixture for 2 minutes
- measure out 50 cm^3 of the slime produced and make this into a disc shape
- place this disc on paper and mark its outline with a pencil line
- leave for 5 minutes
- mark the new outline of the slime with a pencil
- calculate the increase in area of the disc
- repeat, using different concentrations of sodium borate to make the slime.

9B The student would have achieved greater accuracy in the test if she had . . .

1 used a smaller piece of slime.

2 stirred the reacting mixture for more than 2 minutes.

3 allowed the slime to spread for less than 5 minutes.

4 controlled the starting area of the slime discs.

Question 01 · continued

9C One variable that she did not control was . . .

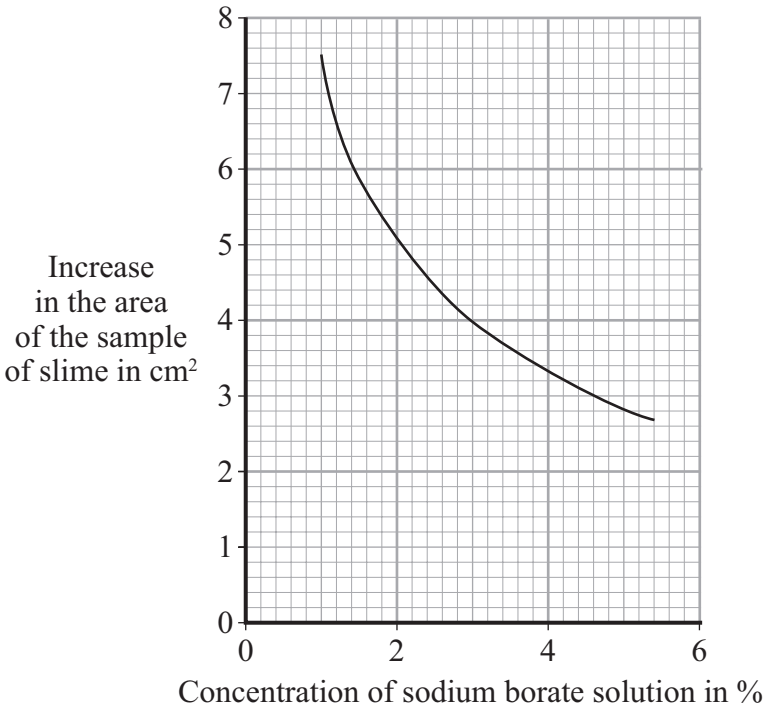
1 the concentration of the poly(vinyl alcohol).

2 the room temperature during the slump test.

3 the volume of the sodium borate solution.

4 the volume of the slime.

9D The student's results are shown on the graph.



The graph shows that . . .

1 the increase in area is directly proportional to the concentration of the sodium borate solution.

2 there is a linear relationship between the increase in area and the concentration of the sodium borate solution.

3 the increase in area is reduced as the sodium borate solution becomes more concentrated.

4 there is no relationship between the size of the disc and the concentration of the sodium borate solution.

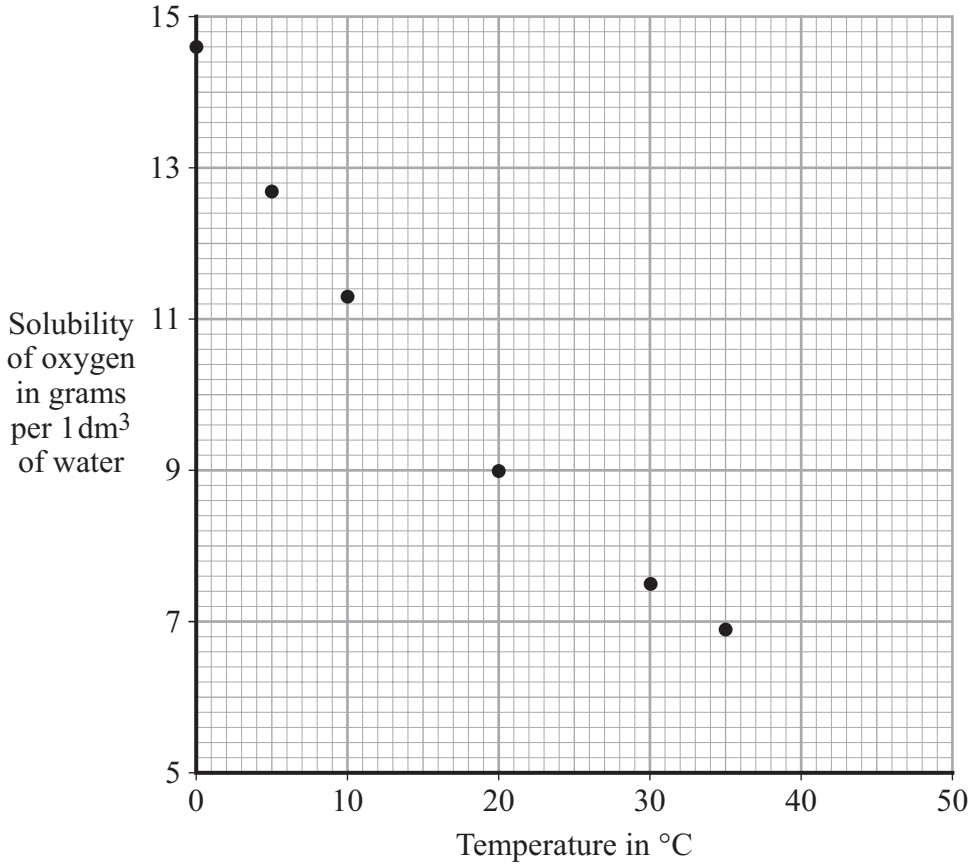
END OF TEST

4.3.2.5 Concentration of solutions

Question 02

January 2008 | CHY3F | Original Q6 | Legacy

6 The points on the graph show the mass of oxygen that dissolves in 1 dm^3 of water at different temperatures.



Use the graph to answer the following questions.

(a) (i) Draw a smooth curve through the points, extending your curve to 50 °C.

(1 mark)

(ii) Use your curve to estimate the mass of oxygen that dissolves in 1 dm^3 of water at 50 °C.

Mass = ... g

(1 mark)

4.3.2.5 Concentration of solutions

Question 02 · continued

BLANK

(iii) What mass of oxygen gas comes out of 1 dm^3 of water when the temperature increases from 15 °C to 50 °C?

.....

.....

Mass = ... g

(2 marks)

(iv) A student claimed that they were more sure of the value at 15 °C than the value at 50 °C.

Do you agree? Explain the reason for your answer.

.....

.....

(1 mark)

Question 6 continues on the next page

4.3.2.5 Concentration of solutions

Question 02 · continued

BLANK

(b) Read the following information and then answer the questions.

> Dissolved oxygen is essential for aquatic life. For example, trout need about 7 g/dm^3 of dissolved oxygen. They can live in concentrations down to about 5 g/dm^3 for short periods but are likely to die if the water temperature is above 26 °C.
>
> The amount of oxygen dissolved in water depends on many factors, including whether it is summer or winter, day or night. Factors such as photosynthesis and the action of wind add oxygen to water. Respiration of aquatic plants at night, decomposition of organic matter and higher temperatures remove oxygen.
>
> The management of a factory wants to put small amounts of waste hot water at 50 °C directly into a lake that contains trout. The local council has objected to this proposal and there is to be an Independent Public Enquiry.

(i) Suggest why it is important to have an Independent Public Enquiry into adding hot water to this lake.

.....

.....

(1 mark)

(ii) Suggest how the experience and status of the people giving evidence at the Public Enquiry could influence the final decision.

.....

.....

(1 mark)

4.3.2.5 Concentration of solutions

Question 02 · continued

BLANK

(iii) At the Public Enquiry, the factory management and the council gave their opinions. Suggest what these opinions were by completing the sentences.

The factory management said that there was **no** risk to the trout because .....

.....

.....

The council said that there **was** a risk to the trout because .....

.....

.....

(2 marks)

9

4.3.2.5 Concentration of solutions

Question 03

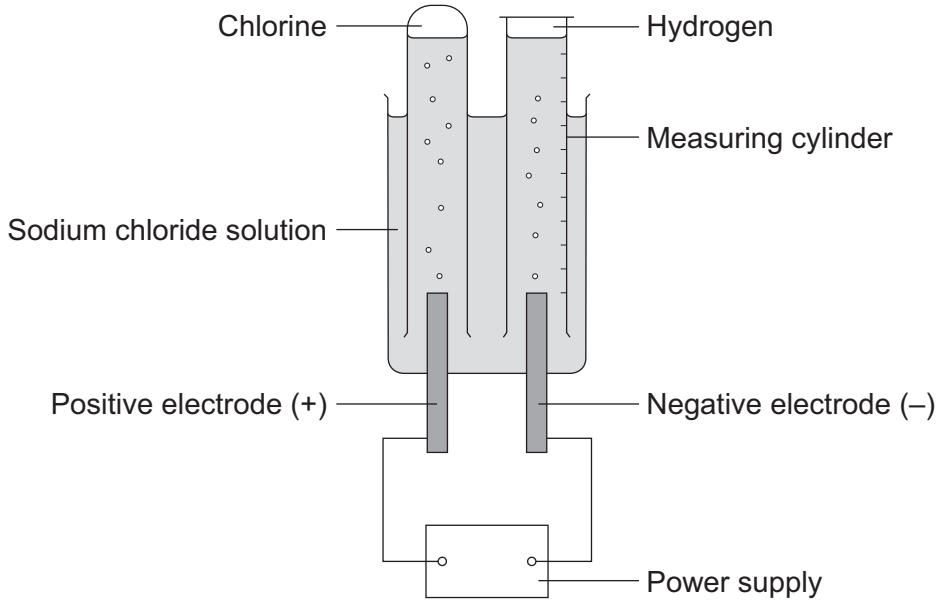
6 A student investigated the electrolysis of sodium chloride solution.

Five sodium chloride solutions were made. Each solution had a different concentration.

To make each solution the student:

- weighed the amount of sodium chloride needed
- dissolved it in water
- added more water until the total volume was one cubic decimetre (1 dm^3).

The solutions were placed one at a time in the apparatus shown below.



The student measured the volume of hydrogen gas produced in ten minutes.

The results are shown on the graph on the next page.

6 (a) Sodium chloride does not conduct electricity when it is solid.

Explain, in terms of ions, why sodium chloride solution conducts electricity.

.....

.....

(1 mark)

6 (b) Chlorine is produced at the positive electrode.

Why are chloride ions attracted to the positive electrode?

.....

(1 mark)

Question 6 continues on the next page

4.3.2.5 Concentration of solutions

Question 03 · continued

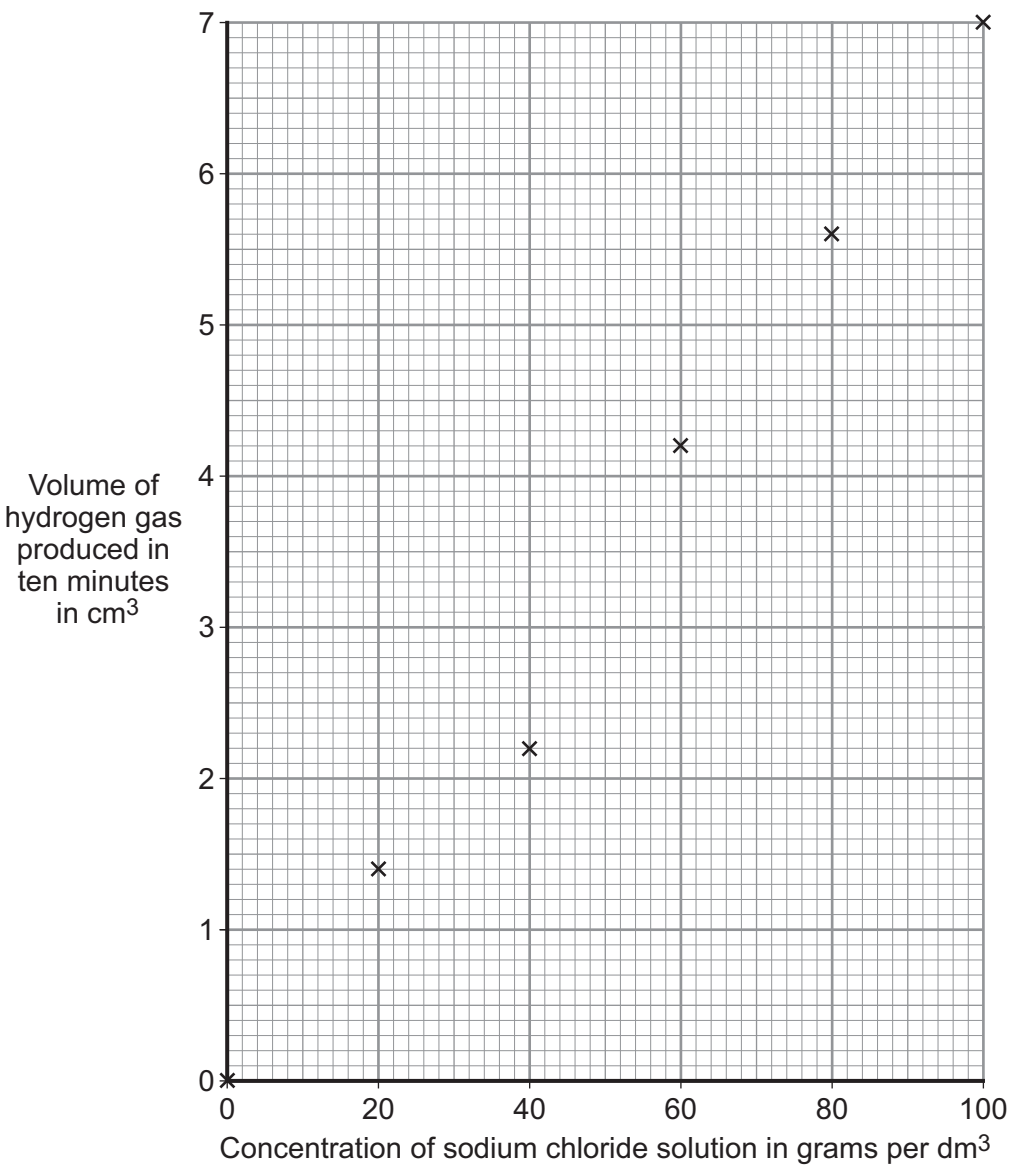
6 (c) The solution left at the end of each experiment contains sodium hydroxide.

Draw a ring around **one** number which could be the pH of this solution.

2 **5** **7** **13**

(1 mark)

6 (d) The results for the experiment on the previous page are shown on the graph.



4.3.2.5 Concentration of solutions

Question 03 · continued

6 (d) (i) Draw a line of best fit on the graph.

(1 mark)

6 (d) (ii) The result for one concentration is anomalous.
Which result is anomalous?

The result at concentration ..... grams per dm^3

(1 mark)

6 (d) (iii) Suggest **two** possible causes of this anomalous result.

1 .....

.....

2 .....

.....

(2 marks)

6 (d) (iv) Suggest how the student could check the reliability of the results.

.....

.....

(1 mark)

6 (d) (v) How did an increase in the concentration of the sodium chloride solution affect the volume of hydrogen gas produced in ten minutes?

.....

.....

(1 mark)

9

4.3.2.5 Concentration of solutions

Question 04

November 2020 | 8462/1F | Original Q10

1 0 This question is about silver iodide.

Silver iodide is produced in the reaction between silver nitrate solution and sodium iodide solution.

The equation for the reaction is:

$$AgNO_3(aq) + NaI(aq) \rightarrow AgI(s) + NaNO_3(aq)$$

1 0 . 1 A student investigated the law of conservation of mass.

This is the method used.

1. Pour silver nitrate solution into a beaker labelled **A**.
2. Pour sodium iodide solution into a beaker labelled **B**.
3. Measure the masses of both beakers and their contents.
4. Pour the solution from beaker **B** into beaker **A**.
5. Measure the masses of both beakers and their contents again.

Table 7 shows the student's results.

Table 7

	Mass before mixing in g	**Mass after mixing in g**
Beaker **A** and contents	78.26	108.22
Beaker **B** and contents	78.50	48.54

Explain how the results demonstrate the law of conservation of mass.

You should use data from **Table 7** in your answer.

[2 marks]

4.3.2.5 Concentration of solutions

Question 04 · continued

1 0 . 2 Suggest how the student could separate the insoluble silver iodide from the mixture at the end of the reaction.

[1 mark]

The student purified the separated silver iodide.

This is the method used.

1. Rinse the silver iodide with distilled water.

2. Warm the silver iodide.

1 0 . 3 Suggest **one** impurity that was removed by rinsing with water.

[1 mark]

1 0 . 4 Suggest why the student warmed the silver iodide.

[1 mark]

Question 10 continues on the next page

4.3.2.5 Concentration of solutions

Question 04 · continued

1 0 . 5 Calculate the percentage atom economy for the production of silver iodide in this reaction.

The equation for the reaction is:

$$AgNO_3(aq) + NaI(aq) \rightarrow AgI(s) + NaNO_3(aq)$$

Give your answer to 3 significant figures.

Relative formula masses (M_r): $AgNO_3 = 170$ NaI = 150 AgI = 235 $NaNO_3 = 85$

[4 marks]

Percentage atom economy (3 significant figures) = _____ %

1 0 . 6 Give **one** reason why reactions with a high atom economy are used in industry.

[1 mark]

10

4.3.2.5 Concentration of solutions

Question 05

0 2 This question is about water.

A student investigated the concentration of salt in sea water.

This is the method used.

1. Filter the sea water to remove sand.
2. Measure the mass of an empty evaporating dish.
3. Measure 50 cm^3 of sea water into the evaporating dish.
4. Heat the evaporating dish and sea water.
5. Evaporate the sea water to dryness.
6. Measure the mass of the evaporating dish and salt.

0 2 . 1 What equipment should the student use to measure:

- the mass of the evaporating dish
- the volume of sea water?

[2 marks]

Mass of evaporating dish _____

Volume of sea water _____

4.3.2.5 Concentration of solutions

Question 05 · continued

0 2 . 2 **Table 2** shows the student's results.

Table 2

	Mass in g
Evaporating dish	30.44
Evaporating dish and salt	30.49

The student used 50 cm^3 of sea water.

Calculate the mass of salt in 1000 cm^3 of this sea water.

[3 marks]

Mass of salt = _____ g

0 2 . 3 The salt must be completely dry.

Which **two** extra steps are needed to show that the salt is completely dry?

[2 marks]

Tick (✓) **two** boxes.

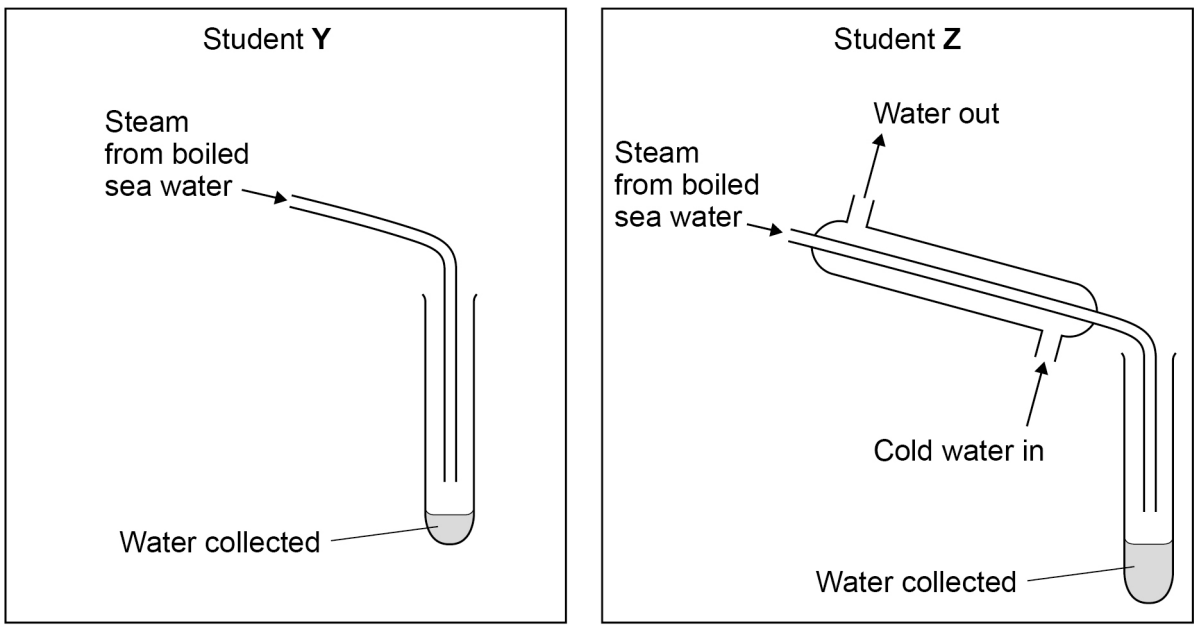
- Filter the sea water again. ☐
- Heat the evaporating dish and salt again. ☐
- Measure the 50 cm^3 of sea water again. ☐
- Measure the mass of the empty evaporating dish again. ☐
- Measure the mass of the evaporating dish and salt again. ☐

Question 05 · continued

Two students, **Y** and **Z**, distil sea water to collect water.

Figure 1 shows the apparatus used by each student to collect the water.

Figure 1



0 2 . 4 Students **Y** and **Z** boil the same volume of sea water for the same period of time.

Explain why student **Y** collects a smaller volume of water than student **Z**.

[2 marks]

0 2 . 5 Water obtained by distillation does **not** need to be sterilised and is safe to drink.

Suggest why.

[1 mark]

4.3.2.5 Concentration of solutions

Question 05 · continued

Fresh water needs to be sterilised before it is safe to drink.

0 2 . 6 How is fresh water sterilised?

[2 marks]

Tick (✓) **two** boxes.

- Using ammonia ☐
- Using chlorine ☐
- Using chromatography ☐
- Using filtration ☐
- Using ozone ☐

0 2 . 7 A student tests the pH of fresh water using universal indicator solution.

When added to the fresh water, the colour of the universal indicator solution is green.

What is the pH of this fresh water?

[1 mark]

pH = _____

13

4.3.2.5 Concentration of solutions

Question 06

November 2021 | 8462/2F | Original Q6

0 6 Potash alum is a chemical compound.

Potash alum contains potassium ions, aluminium ions and sulfate ions.

0 6 . 1 Which **two** methods can be used to identify the presence of potassium ions in potash alum solution?

[2 marks]

Tick (✓) **two** boxes.

- Flame emission spectroscopy ☐
- Flame test ☐
- Measuring boiling point of solution ☐
- Paper chromatography ☐
- Using litmus paper ☐

0 6 . 2 Sodium hydroxide solution is used to test for some metal ions.

Sodium hydroxide solution is added to a solution of potash alum until a precipitate forms.

Complete the sentence.

Choose the answer from the box.

[1 mark]

blue	**brown**	**green**	**white**

The colour of the precipitate formed is _____.

4.3.2.5 Concentration of solutions

Question 06 · continued

0 6 . 3 Complete the sentence.

Choose the answer from the box.

[1 mark]

barium chloride solution	**limewater**
red litmus paper	**silver nitrate solution**

Sulfate ions can be identified using dilute hydrochloric acid

and _____.

0 6 . 4 A solution of potash alum has a concentration of 258 g/dm^3

Calculate the mass of potash alum needed to make 800 cm^3 of a solution of potash alum with a concentration of 258 g/dm^3

Give your answer to 3 significant figures.

[4 marks]

Mass (3 significant figures) = _____ g

8

4.3.2.5 Concentration of solutions

Question 07

June 2023 | 8462/1F | Original Q2

0 2 This question is about acids and alkalis.

0 2 . 1 Acids and alkalis are substances that produce ions in aqueous solution.

Draw **one** line from each substance to the ion always produced by that substance in aqueous solution.

[2 marks]

Substance	Ion always produced in aqueous solution
Acid	Cl^-
	H^+
Alkali	Na^+
	OH^-
	SO_4^{2-}

0 2 . 2 What type of aqueous solution has a pH of 11?

[1 mark]

Tick (✓) **one** box.

- Acidic ☐
- Alkaline ☐
- Neutral ☐

Question 2 continues on the next page

4.3.2.5 Concentration of solutions

Question 07 · continued

A student determined the reacting volumes of hydrochloric acid and sodium hydroxide solution by titration.

This is the method used.

1. Measure 25.0 cm^3 of the sodium hydroxide solution.

2. Add the sodium hydroxide solution to a conical flask.

3. Add 3 drops of indicator to the sodium hydroxide solution.

4. Add the hydrochloric acid drop by drop until the indicator changes colour.

5. Record the volume of the hydrochloric acid added.

6. Repeat steps 1 to 5 three more times.

0 2 . 3 Which piece of equipment should be used to measure 25.0 cm^3 of the sodium hydroxide solution in step 1?

[1 mark]

Tick (✓) **one** box.

Beaker ☐

Pipette ☐

Ruler ☐

0 2 . 4 Which piece of equipment should be used to add the hydrochloric acid drop by drop in step 4?

[1 mark]

Tick (✓) **one** box.

Balance ☐

Burette ☐

Measuring cylinder ☐

4.3.2.5 Concentration of solutions

Question 07 · continued

Table 1 shows the results.

Table 1

Trial	**1**	**2**	**3**	**4**
Volume of hydrochloric acid added in cm^3	24.3	24.5	28.1	24.4

0 2 . 5 Which is the anomalous result in **Table 1**?

[1 mark]

Trial 1 ☐ Trial 2 ☐ Trial 3 ☐ Trial 4 ☐

0 2 . 6 Suggest **one** reason for the anomalous result in **Table 1**.

[1 mark]

0 2 . 7 The student used a solution of sodium hydroxide of concentration 4.00 g/dm^3.

Calculate the mass of sodium hydroxide in 25.0 cm^3 of this solution.

1 dm^3 = 1000 cm^3

[3 marks]

Mass = _____ g

10

4.3.2.5 Concentration of solutions

Question 08

June 2024 | 8462/1F | Original Q3

0 3 This question is about energy changes of reactions.

Zinc reacts with copper sulfate solution.

The word equation for the reaction is:

zinc + copper sulfate → zinc sulfate + copper

0 3 . 1 What type of reaction is the reaction between zinc and copper sulfate solution?

[1 mark]

Tick (✓) **one** box.

Combustion ☐

Decomposition ☐

Displacement ☐

0 3 . 2 Calculate the percentage (%) by mass of copper in copper sulfate ($CuSO_4$).

Give your answer to 3 significant figures.

Relative atomic mass (A_r): Cu = 63.5

Relative formula mass (M_r): $CuSO_4$ = 159.5

[3 marks]

Percentage by mass (3 significant figures) = _____ %

4.3.2.5 Concentration of solutions

Question 08 · continued

A student investigated the energy change in the reaction between zinc and copper sulfate solution.

This is the method used.

1. Measure 25 cm^3 of copper sulfate solution into a polystyrene cup.
2. Weigh 0.20 g of zinc powder.
3. Add the zinc powder to the copper sulfate solution.
4. Measure the highest temperature reached by the mixture.
5. Repeat steps 1 to 4 using different masses of zinc powder.

0 3 . 3 Control variables are used to make an investigation a fair test.

Which is a control variable in the investigation?

[1 mark]

Tick (✓) **one** box.

- Highest temperature reached by the mixture ☐
- Mass of zinc powder ☐
- Volume of copper sulfate solution ☐

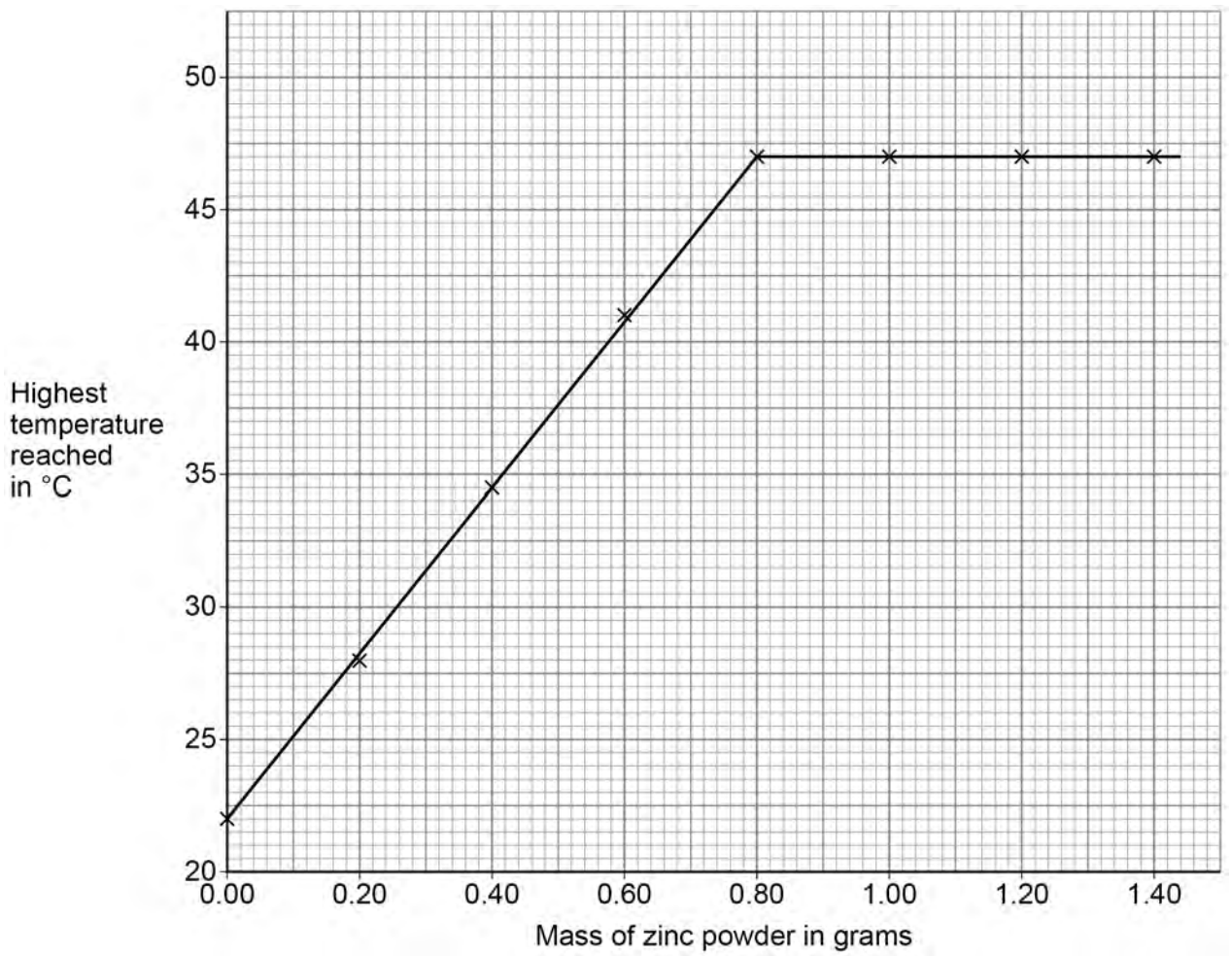
Question 3 continues on the next page

4.3.2.5 Concentration of solutions

Question 08 · continued

Figure 6 shows the results.

Figure 6



0 3 . 4 What is the minimum mass of zinc powder needed to react with all the copper sulfate solution?

Use **Figure 6**.

[1 mark]

Minimum mass of zinc powder = _____ g

4.3.2.5 Concentration of solutions

Question 08 · continued

0 3 . 5 What is the maximum temperature change in the reaction between zinc powder and 25 cm^3 of copper sulfate solution?

Use **Figure 6**.

[2 marks]

Maximum temperature change = _____ °C

0 3 . 6 25 cm^3 of copper sulfate solution contained 6.75 g of copper sulfate.

Calculate the concentration of the solution in g/dm^3.

You should:

- calculate the volume of the solution in dm^3 (1000 cm^3 = 1 dm^3)
- use the equation:

$$\text{concentration of solution in g/dm}^3 = \frac{\text{mass of copper sulfate in grams}}{\text{volume of solution in dm}^3}$$

[3 marks]

Volume of solution = _____ dm^3

Concentration of solution = _____ g/dm^3

Question 3 continues on the next page

Question 08 · continued

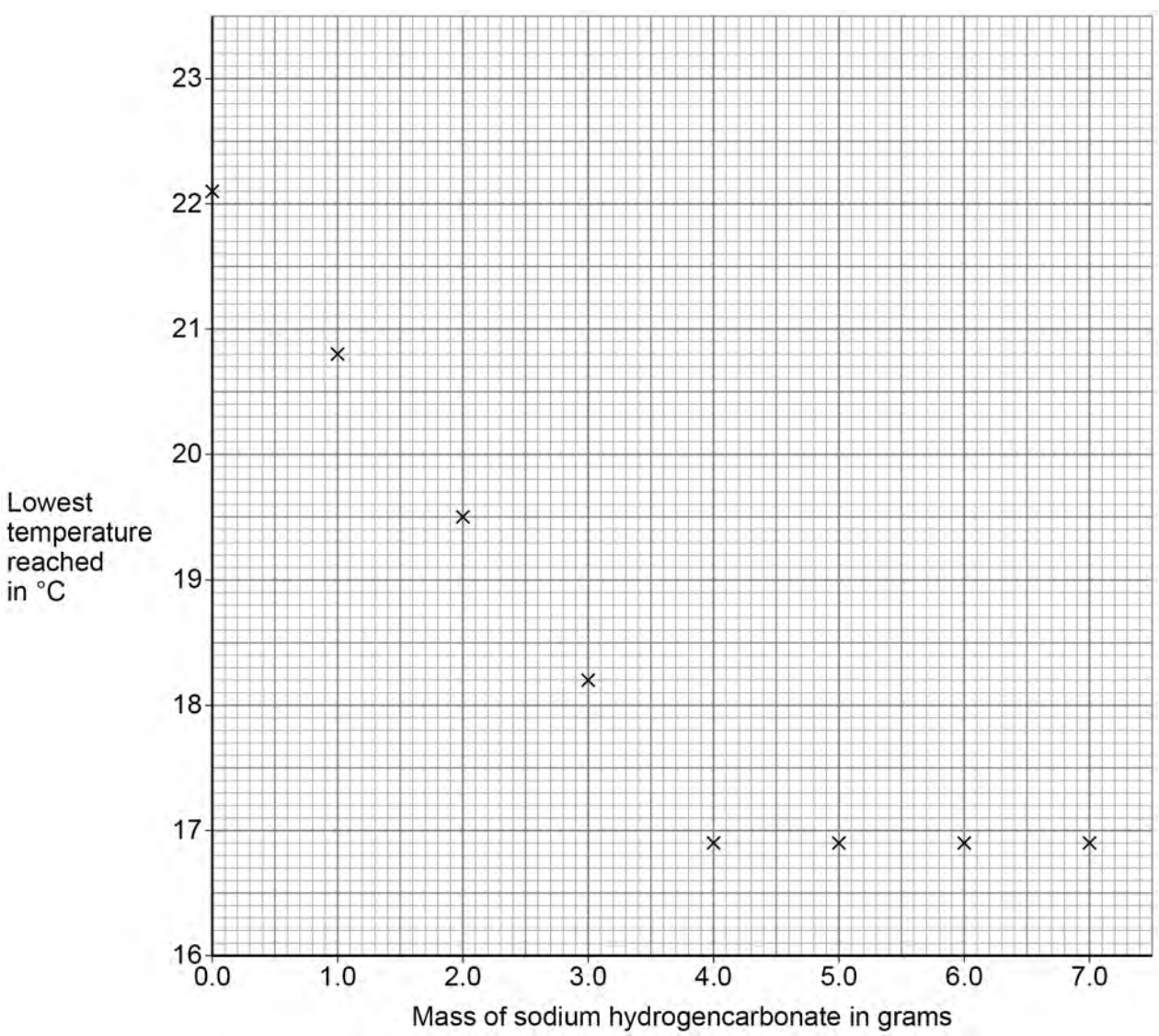
Another student investigated the energy change of the reaction between sodium hydrogencarbonate and hydrochloric acid.

This is the method used.

1. Measure 25 cm^3 of hydrochloric acid.
2. Weigh 1.0 g of sodium hydrogencarbonate.
3. Add the sample of sodium hydrogencarbonate to the hydrochloric acid.
4. Measure the lowest temperature reached by the mixture.
5. Repeat steps 1 to 4 using different masses of sodium hydrogencarbonate.

Figure 7 shows the results.

Figure 7



4.3.2.5 Concentration of solutions

Question 08 · continued

0 3 . 7 Draw **two** straight lines of best fit on **Figure 7**.

The lines should cross.

[2 marks]

0 3 . 8 Which statement describes the energy change in the reaction shown in **Figure 7**?

[1 mark]

Tick (✓) **one** box.

- Energy is **transferred to** the surroundings so the reaction is **endothermic**. ☐
- Energy is **transferred to** the surroundings so the reaction is **exothermic**. ☐
- Energy is **taken in from** the surroundings so the reaction is **endothermic**. ☐
- Energy is **taken in from** the surroundings so the reaction is **exothermic**. ☐

14

4.3.2.5 Concentration of solutions

Question 09

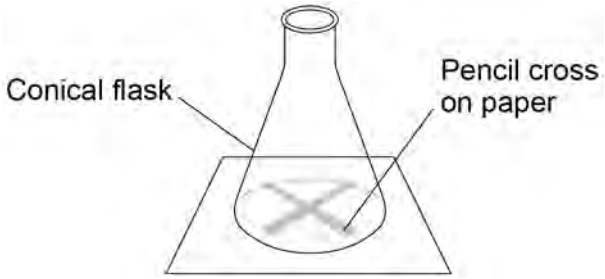
June 2024 | 8462/2F | Original Q5

0 5 A student investigated the rate of the reaction of sodium thiosulfate solution with hydrochloric acid.

When sodium thiosulfate solution reacts with hydrochloric acid, the mixture becomes cloudy.

Figure 6 shows the apparatus.

Figure 6



This is the method used.

1. Put 75 cm^3 of sodium thiosulfate solution in a conical flask.
2. Draw a pencil cross on paper.
3. Put the conical flask on the pencil cross.
4. Add 15 cm^3 of hydrochloric acid to the contents of the conical flask.
5. Swirl the conical flask to mix the contents and immediately start a timer.
6. Stop the timer when the pencil cross is no longer visible through the reaction mixture.
7. Repeat steps 1 to 6 using different concentrations of sodium thiosulfate solution.

0 5 . 1 Explain why a 50 cm^3 conical flask is unsuitable to use in this method.

[2 marks]

4.3.2.5 Concentration of solutions

Question 09 · continued

0 5 . 2 Name a piece of equipment suitable for measuring the volume of sodium thiosulfate solution.

[1 mark]

0 5 . 3 The student measured the time taken for the pencil cross to be no longer visible for different concentrations of sodium thiosulfate solution.

Draw **one** line from each type of variable to the variable in this investigation.

[2 marks]

Type of variable	Variable in this investigation
	Concentration of sodium thiosulfate solution
	Size of conical flask
Dependent variable	
	Temperature of sodium thiosulfate solution
Independent variable	
	Time for pencil cross to become no longer visible
	Volume of hydrochloric acid

Question 5 continues on the next page

Question 09 · continued

0 5 . 4 What effect will using a darker pencil cross have on the time taken for the cross to be no longer visible?

[1 mark]

Tick (✓) **one** box.

The time taken will decrease. ☐

The time taken will be the same. ☐

The time taken will increase. ☐

0 5 . 5 **Table 2** shows the results.

Table 2

Concentration of sodium thiosulfate solution in g/dm^3	Time for cross to become no longer visible in seconds
8	120
16	60
24	40
32	30

Which concentration of sodium thiosulfate solution had the highest rate of reaction?

[1 mark]

Tick (✓) **one** box.

8 g/dm^3 ☐ 16 g/dm^3 ☐ 24 g/dm^3 ☐ 32 g/dm^3 ☐

4.3.2.5 Concentration of solutions

Question 09 · continued

0 5 . 6 Increasing the concentration of sodium thiosulfate solution changes the rate of the reaction with hydrochloric acid.

Which **two** statements explain the effect of increasing the concentration?

[2 marks]

Tick (✓) **two** boxes.

- The particles are closer together. ☐
- The particles are further apart. ☐
- The particles collide less frequently. ☐
- The particles collide more frequently. ☐
- The particles move faster. ☐
- The particles move slower. ☐

0 5 . 7 The effect on the time taken for the cross to disappear can also be investigated by:

- changing the temperature of the hydrochloric acid
- changing the concentration of the hydrochloric acid.

Complete the sentences.

Choose the answers from the box.

[2 marks]

decreases	**stays the same**	**increases**

If the temperature of the hydrochloric acid is **increased**, the time taken for the cross to disappear _____.

If the concentration of the hydrochloric acid is **decreased**, the time taken for the cross to disappear _____.

11

4.3.2.5 Concentration of solutions

Question 10

June 2024 | 8462/2F | Original Q8

0 8 A student investigated an aqueous solution of a salt.

The student identified that the salt solution contained only sodium ions and chloride ions.

0 8 . 1 Describe a test to identify sodium ions.

Give the result of the test.

[2 marks]

Test for sodium ions _____

_____

Result _____

_____

0 8 . 2 Describe a test to identify chloride ions.

Give the result of the test.

[2 marks]

Test for chloride ions _____

_____

Result _____

_____

4.3.2.5 Concentration of solutions

Question 10 · continued

The student determined the concentration of sodium chloride in the salt solution.

This is the method used.

1. Weigh an empty evaporating dish.
2. Add 25.0 cm^3 of the salt solution into the evaporating dish.
3. Heat the evaporating dish and contents.
4. Weigh the evaporating dish and contents.
5. Repeat steps 3 to 4 until there is no further change in mass.
6. Repeat steps 1 to 5 three more times.

0 8 . 3 Why did the student heat the evaporating dish and contents until the mass did not change?

[1 mark]

0 8 . 4 How did the student calculate the mass of solid sodium chloride remaining after steps 1 to 5?

[1 mark]

Tick (✓) **one** box.

- Mass of 25 cm^3 of salt solution + mass of empty evaporating dish ☐
- Mass of 25 cm^3 of salt solution – mass of empty evaporating dish ☐
- Mass of evaporating dish and dry contents + mass of empty evaporating dish ☐
- Mass of evaporating dish and dry contents – mass of empty evaporating dish ☐

Question 8 continues on the next page

4.3.2.5 Concentration of solutions

Question 10 · continued

0 8 . 5 The student calculated the concentration of sodium chloride in the salt solution.

Table 5 shows the results.

Table 5

Concentration of sodium chloride in g/dm^3			
Trial 1	**Trial 2**	**Trial 3**	**Trial 4**
35.2	34.6	36.4	33.8

The percentage by mass of sodium ions in sodium chloride is 39.3%.

Calculate the mean concentration of sodium ions in the salt solution.

[4 marks]

Mean concentration = _____ g/dm^3

10

4.3.2.5 Concentration of solutions

Question 11

June 2025 | 8462/2F | Original Q8

0 8 A student investigated the mass of dissolved solids in sea water.

This is the method used.

1. Weigh an empty evaporating basin.
2. Measure 10.0 cm^3 of sea water sample **A** into the evaporating basin using a burette.
3. Heat the evaporating basin until all the water seems to have evaporated.
4. Weigh the evaporating basin and contents.
5. Calculate the mass of dissolved solids in the sample.
6. Repeat steps 1 to 5 with sea water samples **B**, **C** and **D**.

0 8 . 1 Why did the student use a burette rather than a measuring cylinder to measure 10.0 cm^3 of each sample?

[1 mark]

0 8 . 2 What was the dependent variable in this investigation?

[1 mark]

0 8 . 3 Describe how the student could make sure **all** of the water had evaporated in **step 3**.

[2 marks]

0 8 . 4 How did the student calculate the mass of dissolved solids in each sea water sample?

[1 mark]

Question 11 · continued

Table 3 shows the results.

Table 3

Sea water sample	A	B	C	D
Mass of dissolved solids in grams	0.35	0.37	0.33	0.34

0 8 . 5 Calculate the mean concentration of dissolved solids in 10.0 cm^3 samples of sea water **A**, **B**, **C** and **D**.

Use **Table 3** and the equation:

$$\text{mean concentration of dissolved solids } (g/dm^3) = \frac{\text{mean mass of dissolved solids (g)}}{\text{volume of sample } (dm^3)}$$

Give your answer in g/dm^3.

[5 marks]

Mean concentration = _____ g/dm^3

0 8 . 6 Suggest why sea water samples **A**, **B**, **C** and **D** contain different masses of dissolved solids.

[1 mark]

11