



General Certificate of Secondary Education
2024

Centre Number

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Candidate Number

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Double Award Science Chemistry

Unit 7: Practical Skills

Booklet A

Higher Tier

[GDW75]



GDW75

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all** parts of Question 1.

INFORMATION FOR CANDIDATES

The total mark for this paper is **15**.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Follow all health and safety instructions.
You may use a ruler and calculator if required.
The apparatus and materials required to complete the task(s) are provided.
A Data Leaflet, which includes a Periodic Table of the Elements, is included in this question paper.

For Examiner's
use only

Question Number	Marks
1	

Total Marks	
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1 When a metal hydrogencarbonate is added to an acid, a reaction occurs.

- (a) (i) Using a balance, weigh out between 1.00 g and 1.20 g of potassium hydrogencarbonate in a weighing boat. Record your mass to 2 decimal places, include the correct unit.

 [2]

- (ii) Describe the appearance of potassium hydrogencarbonate.

[1]

- (iii) Using the measuring cylinder labelled hydrochloric acid, measure 20 cm^3 of hydrochloric acid and place in a 100 cm^3 beaker. Describe the appearance of the hydrochloric acid.

[1]

- (iv)** Add the potassium hydrogencarbonate from the weighing boat to the hydrochloric acid in the beaker.
Record your observations.

 [2]

Examiner Only	
Marks	Remark

- (b) Carry out Experiments 1 and 2 to find the temperature change when ethanoic acid reacts with potassium hydrogencarbonate and when hydrochloric acid reacts with potassium hydrogencarbonate.

Record the results of the experiments in Tables 1 and 2 provided.

Examiner Only	
Marks	Remark

Table 1

Number of spatula measures of potassium hydrogencarbonate	Starting temperature of ethanoic acid /°C	Lowest temperature achieved /°C	Change in temperature /°C	Colour of universal indicator paper	pH
0					
2					
4					
6					
8					

[4]

Carry out the following steps.

Experiment 1 – reaction of potassium hydrogencarbonate with ethanoic acid

1. Use the measuring cylinder to measure 20 cm³ of ethanoic acid and place in a 100 cm³ beaker.
2. Use the thermometer to measure the temperature, **to the nearest whole number**, of the ethanoic acid and record this starting temperature in Table 1. Remove the thermometer.
3. Dip a small piece of universal indicator paper in the beaker containing the ethanoic acid. Record the colour obtained in Table 1.
4. Add **2 spatula measures** of potassium hydrogencarbonate to the beaker and stir gently using the thermometer. Measure the lowest temperature achieved, **to the nearest whole number**, and record this temperature in Table 1.
5. Dip a piece of universal indicator paper in the reacting solution containing the potassium hydrogencarbonate and the ethanoic acid. Record the colour obtained in Table 1.
6. Repeat steps 4 and 5 by adding **a further 2 spatula measures** of potassium hydrogencarbonate to the beaker.
7. Keep repeating steps 4 and 5 until a total of 8 spatula measures of potassium hydrogencarbonate have been added to the beaker.
8. Calculate the change in temperature for each of the spatula measures added, using the starting temperature and each lowest temperature achieved.
9. Use the pH colour chart and your results to complete the pH column in Table 1.

Experiment 2 – reaction of potassium hydrogencarbonate with hydrochloric acid

Repeat all the steps as given in Experiment 1 but use hydrochloric acid instead of ethanoic acid.

Record the results in Table 2 below.

Examiner Only	
Marks	Remark

Table 2

Number of spatula measures of potassium hydrogencarbonate	Starting temperature of hydrochloric acid /°C	Lowest temperature achieved /°C	Change in temperature /°C	Colour of universal indicator paper	pH
0					
2					
4					
6					
8					

[4]

(c) Use the results from Tables 1 and 2 to suggest which acid is weaker.

_____ [1]

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THIS IS THE END OF THE QUESTION PAPER

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