



Rewarding Learning

General Certificate of Secondary Education  
2019

Centre Number

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Candidate Number

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# Chemistry

Unit 3: Practical Skills

Booklet A

Foundation Tier



GCM31

[GCM31]

## TIME

2 hours.

## 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** questions.

## INFORMATION FOR CANDIDATES

The total mark for this paper is **30**.

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	
2	

<b>Total Marks</b>	
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- 2 (a) State the maximum volume which can be measured using the burette you have been given. Include the units.

\_\_\_\_\_ [2]

- (b) You will now carry out a titration and use the table below to record the results.

All values in the table should be recorded to 1 decimal place.

	Initial burette reading (cm <sup>3</sup> )	Final burette reading (cm <sup>3</sup> )	Titre (cm <sup>3</sup> )
Rough titration			
First accurate titration			
Second accurate titration			

- (i) Carry out the following procedure.

- Using the 25.0 cm<sup>3</sup> pipette and safety pipette filler place 25.0 cm<sup>3</sup> of sodium hydroxide solution into each of the three conical flasks.
- Add 3 drops of phenolphthalein indicator to each conical flask.
- Fill the burette with hydrochloric acid and ensure the jet is filled.
- Place the first conical flask on a white tile below the burette.
- Record the initial burette reading for the rough titration in the table.
- Add hydrochloric acid from the burette to the conical flask until the indicator changes colour.
- Record the final burette reading for the rough titration and calculate the titre.
- Refill the burette, if necessary, and place the second conical flask on the white tile below the burette. Record the initial burette reading for the first accurate titration.
- Add the hydrochloric acid to the conical flask rapidly until approximately 3 cm<sup>3</sup> less acid is added than the titre obtained for the rough titration.
- Continue to add hydrochloric acid to the conical flask from the burette dropwise until one drop causes the indicator to change colour.
- Record the final burette reading for the first accurate titration and calculate the titre.
- Repeat steps 8 to 11 for the second accurate titration.

[9]

Examiner Only

Marks Remark

(ii) Calculate the average titre. Include the units.

\_\_\_\_\_ [2]

(iii) State the colour change at the end-point.

From \_\_\_\_\_ to \_\_\_\_\_ [2]

Examiner Only	
Marks	Remark

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**THIS IS THE END OF THE QUESTION PAPER**

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