



Rewarding Learning

ADVANCED  
General Certificate of Education  
2017

Centre Number

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Candidate Number

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# Chemistry

Assessment Unit A2 3

*assessing*

Module 3: Practical Examination

**Practical Booklet A**

**MV18**

**[AC233]**

**WEDNESDAY 10 MAY, MORNING**

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## **Time**

1 hour 15 minutes, plus your additional time allowance.

## **Instructions to Candidates**

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided.**

Complete in black ink only.

Answer **both** questions.

## **Information for Candidates**

The total mark for this paper is 20.

Question 1 is a practical exercise worth 8 marks.

Question 2 is a practical exercise worth 12 marks.

Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

A Periodic Table of Elements (including some data) is provided.

**You may not have access to notes, textbooks and other material to assist you.**

**Safety glasses must be worn at all times and care should be taken during the practical examination.**

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# 1 Titration

You are required to titrate standard edta solution against a solution of calcium ions.

You are provided with:

a solution of calcium ions

pH 10 buffer solution

edta solution of concentration  $0.01 \text{ mol dm}^{-3}$

Eriochrome Black T indicator

a reference sample solution showing the colour at the end point

Carry out the titration by:

- Rinsing and filling the burette with the edta solution.
- Rinsing the pipette with the solution of calcium ions and then transferring  $25.0 \text{ cm}^3$  of the solution of calcium ions into a conical flask.
- Using a measuring cylinder add  $10 \text{ cm}^3$  of pH 10 buffer solution to the solution in the conical flask.
- Adding **four drops** of Eriochrome Black T indicator solution to the conical flask and swirling the mixture.
- Titrating  $0.01 \text{ mol dm}^{-3}$  edta solution against the contents of the conical flask until the colour matches the reference sample provided.

Present your results in a suitable table and calculate the average titre. [8 marks]

## 2 Observation

(a) You are provided with a solid salt, labelled **A**. Transfer **A** into a small beaker and dissolve in 50 cm<sup>3</sup> of deionised water. Carry out the following tests on the solution of **A** and record your observations in the spaces below.

Test		Observations
1	Add 5 drops of sodium hydroxide solution to a test tube one quarter filled with the solution of <b>A</b> .	
	Add a further 3 cm <sup>3</sup> of sodium hydroxide solution to the test tube.	[1 mark]  [1 mark]
2	Add 5 drops of barium chloride solution to a test tube one quarter filled with the solution of <b>A</b> .	[1 mark]

<b>3</b>	<p><b>(a)</b> Add 4 cm<sup>3</sup> of potassium manganate(VII) solution and 1 cm<sup>3</sup> of sulfuric acid to a test tube. Add 6 cm<sup>3</sup> of the solution of <b>A</b> and shake the mixture gently.</p> <p>Pour approximately half of this solution into another test tube.</p> <p><b>(b)</b> Add 5 drops of potassium thiocyanate solution to one of the test tubes.</p> <p><b>(c)</b> Add 5 drops of sodium hydroxide solution to the other test tube. Do not shake the test tube.</p>	<p>[2 marks]</p> <p>[2 marks]</p> <p>[1 mark]</p>
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(b) You are provided with a solution of an organic liquid, labelled **B**. Carry out the following tests and record your observations in the table below.

Test	Observations
<p><b>1</b> Fill a test tube one quarter full with <b>B</b>. Record the initial temperature. Add 2 cm of magnesium ribbon to <b>B</b>. Record the final temperature.</p>	<p>[2 marks]</p>
<p><b>2</b> Fill a test tube one quarter full with <b>B</b>. Record the initial temperature. Add a spatula measure of ammonium carbonate to <b>B</b>. Record the final temperature.</p>	<p>[2 marks]</p>

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

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Question Number	Marks	
	Examiner Mark	Remark
1		
2		
<b>Total Marks</b>		

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