



Rewarding Learning

ADVANCED  
General Certificate of Education  
2015

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]**

**TUESDAY 5 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.

Answer **both** questions.

Write your answers in the spaces provided.

## **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.**

## Practical Booklet A

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

### 1 Titration exercise

You are required to titrate standard sodium thiosulfate solution against iodine liberated by the reaction of a solution of potassium iodate(V) with acidified potassium iodide solution.

You are provided with the following:

- a solution of potassium iodate(V)
  - four 20 cm<sup>3</sup> portions of sulfuric acid
  - potassium iodide solution
  - sodium thiosulfate solution of concentration 0.10 mol dm<sup>-3</sup>
  - starch indicator
1. Rinse and fill the burette with the appropriate solution.
  2. Use a measuring cylinder to pour 10 cm<sup>3</sup> of potassium iodide solution into a 250 cm<sup>3</sup> conical flask.
  3. Add 20 cm<sup>3</sup> of dilute sulfuric acid to the solution in the conical flask.
  4. Use a measuring cylinder to add 5 cm<sup>3</sup> of potassium iodate(V) solution to the acidified potassium iodide solution.
  5. Titrate 0.10 mol dm<sup>-3</sup> sodium thiosulfate solution against the iodine formed.

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

## Results table

## 2 Observation exercise

(a) You are provided with a salt, labelled **X**. Carry out the following tests on **X** and record your observations in the table below.

Test	Observations
1 Describe the appearance of <b>X</b> .	[1 mark]
2 Add 3 spatula measures of <b>X</b> to 20 cm <sup>3</sup> of water and stir until there is no further change. Use this solution for tests 3, 4 and 5.	[1 mark]
3 (a) In a fume cupboard add 5 drops of concentrated ammonia solution to 2 cm <sup>3</sup> of the solution of <b>X</b> in a test tube.  (b) Add a further 5 cm <sup>3</sup> of concentrated ammonia solution to the test tube.	[2 marks]
4 (a) Add 5 drops of sodium hydroxide solution to 2 cm <sup>3</sup> of the solution of <b>X</b> in a test tube.  (b) Add a further 5 cm <sup>3</sup> of sodium hydroxide solution to the test tube.	[2 marks]

<b>5</b> Add 2 cm <sup>3</sup> of barium chloride solution to a test tube containing 2 cm <sup>3</sup> of the solution of <b>X</b> .	[1 mark]
<b>6</b> Place a half spatula measure of <b>X</b> onto a watch glass in a fume cupboard. Wearing gloves, slowly add 10 drops of concentrated sulfuric acid to <b>X</b> .	[1 mark]
<b>7</b> Place a spatula measure of <b>X</b> in a dry boiling tube. Heat the boiling tube gently.	[2 marks]

(b) You are provided with an organic liquid labelled **Y**. Carry out the following tests and record your observations in the table below.

N.B. Water bath filled using hot water from a kettle.

<b>Test</b>	<b>Observations</b>
<b>1</b> Add 10 drops of <b>Y</b> to 2 cm <sup>3</sup> of acidified potassium dichromate solution in a test tube. Place the test tube in a hot water bath for 5 minutes.	[1 mark]
<b>2</b> Add 1 cm <sup>3</sup> of <b>Y</b> to 2 cm <sup>3</sup> of Fehling's solution in a test tube. Place the test tube in a hot water bath for 5 minutes.	[1 mark]

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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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