



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**

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 cm³ portions of sulfuric acid
 - potassium iodide solution
 - sodium thiosulfate solution of concentration 0.10 mol dm⁻³
 - starch indicator
1. Rinse and fill the burette with the appropriate solution.
 2. Use a measuring cylinder to pour 10 cm³ of potassium iodide solution into a 250 cm³ conical flask.
 3. Add 20 cm³ of dilute sulfuric acid to the solution in the conical flask.
 4. Use a measuring cylinder to add 5 cm³ of potassium iodate(V) solution to the acidified potassium iodide solution.
 5. Titrate 0.10 mol dm⁻³ 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 X .	[1 mark]
2 Add 3 spatula measures of X to 20 cm ³ 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 ³ of the solution of X in a test tube. (b) Add a further 5 cm ³ of concentrated ammonia solution to the test tube.	[2 marks]
4 (a) Add 5 drops of sodium hydroxide solution to 2 cm ³ of the solution of X in a test tube. (b) Add a further 5 cm ³ of sodium hydroxide solution to the test tube.	[2 marks]

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

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

THIS IS THE END OF THE QUESTION PAPER

Question Number	Marks	
	Examiner Mark	Remark
1		
2		
Total Marks		

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