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Rewarding Learning

Centre Number

Candidate Number

ADVANCED
General Certificate of Education
2017

Chemistry

Assessment Unit A2 3
assessing
Module 3: Practical Examination
Practical Booklet A

MV18

[AC233]

WEDNESDAY 10 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.
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 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 cm^3 of the solution of calcium ions into a conical flask.
- Using a measuring cylinder add 10 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 mol dm^{-3} edta solution against the contents of the conical flask until the colour matches the reference sample provided.

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

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2 Observation

(a) You are provided with a solid salt, labelled **A**. Transfer **A** into a small beaker and dissolve in 50 cm^3 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 **A**. Add a further 3 cm^3 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 **A**.	[1 mark]

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3	**(a)** Add 4 cm^3 of potassium manganate(VII) solution and 1 cm^3 of sulfuric acid to a test tube. Add 6 cm^3 of the solution of **A** and shake the mixture gently. Pour approximately half of this solution into another test tube. **(b)** Add 5 drops of potassium thiocyanate solution to one of the test tubes. **(c)** Add 5 drops of sodium hydroxide solution to the other test tube. Do not shake the test tube.	[2 marks] [2 marks] [1 mark]

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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
1	Fill a test tube one quarter full with **B**. Record the initial temperature. Add 2 cm of magnesium ribbon to **B**. Record the final temperature.	[2 marks]
2	Fill a test tube one quarter full with **B**. Record the initial temperature. Add a spatula measure of ammonium carbonate to **B**. Record the final temperature.	[2 marks]

THIS IS THE END OF THE QUESTION PAPER

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Question Number	Marks	
	Examiner Mark	Remark
1		
2		
Total Marks		

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