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| Centre Number | | | | | | Candidate Number | | | | |
| Surname | | | | | | | | | | |
| Other Names | | | | | | | | | | |
| Candidate Signature | | | | | | | | | | |

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| For Examiner's Use Total Task 1 |
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General Certificate of Education
Advanced Level Examination
June 2010

Chemistry

CHM6X/PM1

Unit 6X A2 Externally Marked Practical Assignment
Task Sheet 1

To be completed before Task Sheet 2.

For submission by 15 May 2010

For this paper you must have:

- a ruler
- a calculator.

The investigation of a hair bleach

Hydrogen peroxide can act as an oxidising agent and as a reducing agent. Aqueous solutions of hydrogen peroxide are used to bleach human hair. However, hydrogen peroxide is also a skin irritant, so it must only be used in dilute solution.

This practical assessment is in two parts, Task 1 and Task 2.

In Task 1 you will complete a series of observation exercises on a solution of a hair bleach. The results of these exercises will allow you to confirm that this hair bleach contains hydrogen peroxide.

In Task 2 you will determine the concentration of a solution of hydrogen peroxide in this bleach by titration with aqueous potassium manganate(VII) in the presence of dilute sulfuric acid.

Task 1 Observation exercises

Confirmation of the presence of hydrogen peroxide in a hair bleach

You are provided with an aqueous solution, labelled **A**, of the hair bleach.

Use a separate sample of solution A in each of the following tests.

Record what you **observe** in a table of your own design on the Candidate Results Sheet for Task 1. Where no visible change is observed, write 'no visible change'.

You are **not** required to identify solution **A** or any of the reaction products in this part of the task.

Wear eye protection at all times.

For the purpose of this task assume that all of the solutions are toxic and corrosive.

Test 1 Test with chromium(III) sulfate solution and sodium hydroxide solution

Place about 20 drops of chromium(III) sulfate solution in a test tube. Add sodium hydroxide solution, dropwise with shaking, until the test tube is about one quarter full. Now add 20 drops of **A** and shake the mixture. Leave the mixture to stand for a few minutes.

While you are waiting, begin the tests below.

Test 2 Test with universal indicator solution

Place about 10 drops of **A** in a test tube. Add 3 drops of universal indicator solution, and shake the mixture.

Test 3 Test with manganese(IV) oxide

Place about 10 drops of **A** in a test tube. Add a small amount of manganese(IV) oxide.

Candidate Results Sheet for Task 1

Teacher Group

Results

Record your observations in a table of your own design in the space below.

For Examiner's use only

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ANSWER IN THE SPACES PROVIDED**