



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

**CHEMISTRY**

0620/52

Paper 5 Practical Test

May/June 2013

CONFIDENTIAL INSTRUCTIONS

**Great care should be taken to ensure that any confidential information given does not reach the candidates either directly or indirectly.**

**READ THESE INSTRUCTIONS FIRST**

The teacher responsible for preparing the examination is **not** allowed to consult the question paper before the examination. Teachers should, as part of the preparation of the examination requirements, carry out any tests indicated on page 2 in order to satisfy themselves that the supplied materials are satisfactory.

The standard Report Form to be included with the scripts is given on pages 7 and 8. Please detach and enclose it with the scripts. If scripts are despatched in more than one envelope, it is essential that a copy of the Supervisor's Results and of the Report Form are sent inside **each** envelope.

More material may be issued if required, without penalty, but this should not be necessary. Safety spectacles may be provided if considered necessary.

Supervisors are advised to remind candidates that all substances in the examination should be treated with caution. Please also see under 'General Apparatus' on the use of pipette fillers and safety goggles.

In accordance with COSHH (Control of Substances Hazardous to Health) Regulations, operative in the UK, a hazard appraisal of the examination has been carried out.

Attention is drawn, in particular, to certain materials used in the examination. The following codes are used where relevant.

**C** = corrosive substance

**F** = highly flammable substance

**H** = harmful or irritating substance

**O** = oxidising substance

**N** = harmful to the environment

**T** = toxic substance

Hazard data sheets should be available from your suppliers.

If you have any queries regarding these Instructions, please contact CIE

by e-mail: info@cie.org.uk,

by phone: +44 1223 553554,

by fax: +44 1223 553558,

stating the Centre number, the nature of the query and the syllabus number quoted above.

This document consists of **8** printed pages.



**For Question 1**

*Each candidate will require*

- (a) one 25 cm<sup>3</sup> or 50 cm<sup>3</sup> measuring cylinder
  - (b) one burette, 50 cm<sup>3</sup>
  - (c) one 250 cm<sup>3</sup> conical flask
  - (d) 100 cm<sup>3</sup> of aqueous potassium manganate(VII), KMnO<sub>4</sub>, of concentration 3.2 g/dm<sup>3</sup> labelled **solution A**
  - (e) 50 cm<sup>3</sup> of aqueous sodium ethanedioate, Na<sub>2</sub>C<sub>2</sub>O<sub>4</sub>, of concentration 6.7 g/dm<sup>3</sup>, labelled **solution B**. This is made by dissolving the solid in about 100 cm<sup>3</sup> of distilled water and 250 cm<sup>3</sup> of sulfuric acid of concentration 1.0 mol/dm<sup>3</sup> and making up to 1 dm<sup>3</sup> with the sulfuric acid.
- [H] (f) 50 cm<sup>3</sup> of aqueous sodium ethanedioate, Na<sub>2</sub>C<sub>2</sub>O<sub>4</sub>, of concentration 3.4 g/dm<sup>3</sup>, made up as in (e), labelled **solution C**
- (g) tripod and gauze
  - (h) access to water and distilled water
  - (i) one stirring thermometer, 0–110 °C
  - (j) a white tile
  - (k) Bunsen burner and matches

Note: Students should be instructed in advance on a safe method of transferring a hot conical flask from a tripod to a white tile.

**For Question 2**

*Each candidate will require*

- (a) a stoppered test-tube containing a mixture of about 0.3 g of aluminium sulfate,  $Al_2(SO_4)_3 \cdot 16H_2O$ , and 1 g of powdered calcium carbonate,  $CaCO_3$ , labelled **mixture of solids R and S**
  - (b) filtration apparatus, filter funnel and filter paper
  - (c) one boiling tube and stopper
  - (d) access to water and distilled water
  - (e) splints
  - (f) rack of test-tubes and one stopper
- [H] (g) limewater and apparatus to test for carbon dioxide
- (h) aqueous barium nitrate of suitable concentration to give a positive sulfate test
  - (i) aqueous silver nitrate of suitable concentration to give a positive halide test
- [C] (k) aqueous nitric acid of concentration  $1 \text{ mol/dm}^3$
- (l) aqueous ammonia of concentration  $1 \text{ mol/dm}^3$
- [C] (m) aqueous sodium hydroxide of concentration  $1 \text{ mol/dm}^3$
- (n) aqueous hydrochloric acid of concentration  $1 \text{ mol/dm}^3$
  - (o) one  $10 \text{ cm}^3$  measuring cylinder
  - (p) Bunsen burner and matches
  - (q) teat pipettes
  - (r) spatula
  - (s) pH indicator papers and chart

Labels do not need to include concentrations.

**THE SUPERVISOR'S REPORT IS ON PAGES 7 AND 8**

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This form must be completed and returned in the envelope with the scripts.

REPORT ON PRACTICAL CHEMISTRY

JUNE 2013

**1 (a)** Supervisor's Results

It is recommended that the Supervisor should be a chemistry teacher.

The Supervisor is asked to carry out the experiments in Questions 1 and 2 and to record the results on a spare copy of the question paper clearly labelled 'Supervisor's Results'. Failure to enclose these results and this report form may lead to candidates being unavoidably penalised.

**(b)** The candidate numbers of candidates in each session were:

*First session*

*Second session*



2 The Supervisor is invited to report details of any difficulties experienced by candidates giving names and candidate numbers. The report should include reference to:

- (a) any general difficulties encountered in making preparations for the examination;
- (b) difficulties due to faulty apparatus or materials;
- (c) accidents to apparatus or materials.

Other cases of individual hardship, e.g. illness, temporary disability, should be reported direct to UCLES on the normal *Application for Special Consideration* form.

NAME OF CENTRE .....

CENTRE NUMBER .....

SIGNED .....

*Supervisor*

DECLARATION (to be signed by the Principal)

The preparation of this practical examination has been carried out so as to maintain fully the security of the examination.

NAME .....  
(in block capitals)

SIGNED ..... (Principal)

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