



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CHEMISTRY

0620/52

Paper 5 Practical Test

February/March 2015

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 pages 2 and 3 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 Cambridge

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.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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

* 5 0 2 3 1 8 7 5 1 6 *

For Question 1

Each candidate will require

- (a) Bunsen burner and matches
- (b) one 250 cm³ beaker
- [O] [H] (c) 4 g of potassium chlorate(V) crystals, $KClO_3$, in a stoppered boiling tube, labelled **salt D**
- (d) one stirring thermometer, covering the range 0 °C to 110 °C
- (e) access to water and distilled water
- (f) one 50 cm³ burette with stand and clamp
- (g) test-tube holder
- (h) access to a container (e.g. bucket or glass/plastic tub/trough) which is approximately half-filled with water and labelled **waste for Question 1**

(A 1 dm³ container would be suitable for 1-4 candidates. Larger containers could be shared by greater numbers of candidates.)

For Question 2

Each candidate will require

- (a) a stoppered test-tube containing about 10 cm³ of aqueous diammonium iron(II) sulfate-6-water (ferrous ammonium sulfate), (NH₄)₂Fe(SO₄)₂·6H₂O, of concentration 0.1 mol/dm³, freshly made, labelled **solution E**

This solution can be prepared by dissolving 19.6 g of the salt in 50 cm³ of 1 mol/dm³ sulfuric acid and diluting to 500 cm³ with distilled water in a graduated flask.

- [H] (b) a stoppered boiling tube containing about 12 cm³ of a solution of ammonium trioxovanadate(V) (metavanadate), NH₄VO₃, labelled **solution F**

Wear goggles when preparing this solution. Dissolve 1.2 g of ammonium trioxovanadate(V) (metavanadate) in 20 cm³ of 2 mol/dm³ sodium hydroxide in a beaker. Transfer the solution to a 100 cm³ measuring cylinder. Add 1 mol/dm³ sulfuric acid to bring the total volume up to 100 cm³. Do not heat to dissolve. This should produce a clear yellow solution.

- (c) rack of six test-tubes and a bung
(d) Universal Indicator (pH indicator) papers and chart

- [C] (e) aqueous sodium hydroxide of concentration 1.0 mol/dm³

- (f) aqueous barium nitrate of suitable concentration to give a positive sulfate test

- [C] (g) aqueous nitric acid of concentration 1.0 mol/dm³

- (h) filtration apparatus, funnel and filter paper
(i) aqueous potassium manganate(VII) of concentration 0.05 mol/dm³
(j) zinc granules
(k) spatula
(l) 10 cm³ measuring cylinder
(m) Bunsen burner and matches
(n) splints
(o) teat pipettes
(p) access to water and distilled water
(q) test-tube holder
(r) access to clock or stopwatch

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

MARCH 2015

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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