

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
Joint Examination for the School Certificate  
and General Certificate of Education Ordinary Level

**CHEMISTRY**

**5070/03**

Paper 3 Practical Test

October/November 2005

**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**

Teachers responsible for the examination are **NOT** allowed to consult the question paper before the day of the examination. However, they are asked to carry out any tests given on page 2 of these instructions.

On the day of the examination, the Supervisor is asked to perform 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', followed by the number of the Centre. This must be enclosed with the scripts. **Unless this is done candidates may be unavoidably penalised.**

**It is essential that candidates accept the descriptions of the solutions as they appear in the question paper.**

If candidates from more than one Centre are taking the examination, it is **essential** that a copy of the Supervisor's Results should be sent with the scripts for each Centre.

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

by e-mail: International@ucles.org.uk,

by phone: +44 1223 553554,

by fax: +44 1223 553558,

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

This document consists of **5** printed pages and **3** blank pages.



**INSTRUCTIONS TO SUPERVISORS****For Question 1**

Candidates will require the following.

- (a) Approximately  $0.1 \text{ mol/dm}^3$  hydrochloric acid (HCl), labelled **P**

Allow each candidate approximately  $150 \text{ cm}^3$ .

- (b) Approximately  $0.1 \text{ mol/dm}^3$  sodium hydroxide (approximately  $4.0 \text{ g/dm}^3$  NaOH) labelled **Q**

Allow each candidate approximately  $150 \text{ cm}^3$ .

- (c) Methyl Orange or Screened Methyl Orange indicator

Note: Some variation in the above concentrations is acceptable but it is **essential** that  $25.0 \text{ cm}^3$  of **Q** reacts with between  $23.0 \text{ cm}^3$  and  $27.0 \text{ cm}^3$  of **P** (or  $20.0 \text{ cm}^3$  of **Q** reacts with between  $18.0 \text{ cm}^3$  and  $22.0 \text{ cm}^3$  of **P**).

The following apparatus should be provided for each candidate:

a  $50 \text{ cm}^3$  burette,

a  $25 \text{ cm}^3$  (or  $20 \text{ cm}^3$ ) pipette,

a flask or other suitable vessel for titration.

**All candidates at a Centre should have pipettes of the same capacity.**

**For Question 2**

Each candidate will require the following.

- (a) A solution containing 48 g of hydrated aluminium chloride ( $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$ ), dissolved in 1 dm<sup>3</sup> of distilled water, labelled **S**. A small volume of concentrated hydrochloric acid may be added to this solution in order to clear it, but this should not be necessary.

Allow each candidate approximately 15 cm<sup>3</sup>.

- (b) A solution containing 66 g of lead(II) nitrate,  $\text{Pb}(\text{NO}_3)_2$ , dissolved in 1 dm<sup>3</sup> of distilled water, labelled **T**.

Allow each candidate approximately 15 cm<sup>3</sup>.

- (c) A solution containing 5.0 g of silver nitrate,  $\text{AgNO}_3$ , dissolved in 1 dm<sup>3</sup> of distilled water, labelled **U**.

Allow each candidate approximately 15 cm<sup>3</sup>.

**For Questions 1 and 2**

Each candidate will require:

- (a) access to:
- (i) approximately 1.0 mol/dm<sup>3</sup> aqueous sodium hydroxide,
  - (ii) small pieces of aluminium foil,
  - (iii) approximately 0.2 mol/dm<sup>3</sup> aqueous barium nitrate (or approximately 0.2 mol/dm<sup>3</sup> aqueous barium chloride, labelled 'barium nitrate'),
  - (iv) approximately 0.05 mol/dm<sup>3</sup> aqueous silver nitrate,
  - (v) approximately 1.0 mol/dm<sup>3</sup> aqueous ammonia,
  - (vi) approximately 1.0 mol/dm<sup>3</sup> hydrochloric acid,
  - (vii) approximately 0.2 mol/dm<sup>3</sup> aqueous potassium iodide,
  - (viii) the usual reagents needed to test for the gases mentioned in the syllabus, including limewater, approximately 0.1 mol/dm<sup>3</sup> aqueous potassium dichromate(VI),  $\text{K}_2\text{Cr}_2\text{O}_7$ , red and blue litmus paper or Universal Indicator paper, splints,
- (b) a supply of test-tubes, approximately 125 mm x 16 mm,
- (c) a stirring rod.

In both questions, more material may be issued without penalty, but this should not be necessary.

It is advisable to issue candidates with a pipette filler (or equivalent safety device) and safety goggles.

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 in the normal way.

See also the side lined notes on pages 1, 7 and 8.







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

**REPORT ON PRACTICAL CHEMISTRY**

ORDINARY LEVEL, NOVEMBER 2005

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

Supervisors are asked to use a spare copy of the question paper to report their results for **Q.1** and **Q.2** and enclose this copy of the question paper with the candidates' answers. This copy of the question paper should be clearly labelled 'Supervisor's Results'. Failure to enclose these results and this report form may lead to candidates being unavoidably penalised.

|| If candidates from more than one Centre are taking the examination, it is **essential** that a copy of the 'Supervisor's Results' should be sent with the scripts from **each Centre**. ||

**(b)** The index number of the candidates attending each session were:

*First Session*

*Second Session*

- 2 The Supervisor is invited to report details of any difficulties experienced by candidates, giving names and index numbers.

This report should include reference to:

- (a) any general difficulties encountered in making preparation;
- (b) difficulties due to faulty apparatus or material;
- (c) accidents to apparatus or materials.

Other cases of individual hardship, e.g. illness, disability, should be reported in the normal manner.

**NAME OF CENTRE** .....

**SIGNED** .....

*Supervisor*

**CENTRE NUMBER** .....

|| If the candidates' Centre number is different from the number of the Centre at which the examination was taken, the Supervisor should write **both Centre numbers in the space provided.** ||

**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.

**SIGNED** .....

**NAME (in block capitals)** .....

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.