

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CHEMISTRY

5070/03

Paper 3 Practical Test

CONFIDENTIAL INSTRUCTIONS

May/June 2005

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

INSTRUCTIONS TO SUPERVISORS

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 in 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.

Small amounts of an irritant gas will be produced in Question 2. In a badly ventilated laboratory, this may cause respiratory distress to asthmatic students. In a well ventilated laboratory, with the correct precautions this should not be a hazard.

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.

INSTRUCTIONS TO SUPERVISORS

For Question 1

Candidates will require the following.

- (a) Approximately 0.1 mol/dm^3 hydrochloric acid (HCl), labelled **P**.

Allow each candidate approximately 150 cm^3 .

- (b) Approximately 0.1 mol/dm^3 sodium hydroxide (approximately 4.0 g/dm^3 NaOH) labelled **Q**.

Allow each candidate approximately 150 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 cm^3 of **Q** reacts with between 23.0 cm^3 and 27.0 cm^3 of **P** (or 20.0 cm^3 of **Q** reacts with between 18.0 cm^3 and 22.0 cm^3 of **P**).

The following apparatus should be provided for each candidate;
a 50 cm^3 burette;
a 25 cm^3 (or 20 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 50 g of hydrated sodium thiosulphate, $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$, dissolved in 1 dm³ of distilled water, labelled **R**.

A small volume of aqueous sodium hydroxide should be added to this solution to ensure that it is not acidic. 5 cm³ of 1.0 mol/dm³ sodium hydroxide per 1 dm³ of solution **R** should be sufficient.

Allow each candidate approximately 30 cm³.

See also the warning note on Page 1 of these instructions.

- (b) A solution containing 50 g of potassium iodide, KI, dissolved in 1 dm³ of distilled water, labelled **S**.

Allow each candidate approximately 30 cm³.

Note that on the question paper both R and S are described as sodium salts.

- (c) Access to

- (i) approximately 1.0 mol/dm³ hydrochloric acid,
- (ii) approximately 0.020 mol/dm³ potassium manganate(VII) dissolved in approximately 0.5 mol/dm³ sulphuric acid, labelled 'acidified potassium manganate(VII)',
- (iii) approximately 0.1 mol/dm³ aqueous silver nitrate,

(Note: this solution is more concentrated than the aqueous silver nitrate normally used for testing for halides.)

- (iv) approximately 0.2 mol/dm³ aqueous lead(II) nitrate,
 - (v) approximately 1.0 mol/dm³ nitric acid,
 - (vi) the usual reagents needed to test for the gases mentioned in the syllabus, including limewater, approximately 0.1 mol/dm³ aqueous potassium dichromate(VI), $\text{K}_2\text{Cr}_2\text{O}_7$, red and blue litmus paper or Universal Indicator paper, splints.
- (d) A supply of test-tubes, approximately 125 mm x 16 mm.
- (e) A boiling-tube approximately 150 mm x 24 mm
- (f) A stirring rod.
- (g) Bunsen or other means of heating.

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, JUNE 2005

1 (a) *Supervisor's results*

Supervisors must 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**. At larger centres where scripts are to be despatched in more than one envelope, it is essential that a copy of the Supervisor's Results is enclosed in each envelope.

(b) The index number of the candidates in each session were as follows.

First session

Second session



- 2 The Supervisor is invited to report details of any difficulties experienced by candidates, 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, temporary disability, should be reported direct to UCLES on the normal 'Application for Special Consideration' form.

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)

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