



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

---

**COMBINED SCIENCE**

**0653/05**

Paper 5 Practical Test

**May/June 2008**

CONFIDENTIAL INSTRUCTIONS

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

---

**The Supervisor's attention is drawn to the form on page 8 which must be completed and returned with the scripts.**

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

by e-mail: [International@cie.org.uk](mailto:International@cie.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 **4** printed pages.



## Instructions for preparing apparatus

These instructions detail the apparatus, reagents and specimens required by each candidate for each experiment in this paper. A summary of the questions that will be presented to the candidates is included, where appropriate, to allow the teacher to test the apparatus appropriately. **No access is permitted to the question paper in advance of the examination session.**

It is assumed that the ordinary apparatus of a science laboratory will be available, including a supply of purified water (distilled or deionised).

If arrangements are made for different sessions for different groups of candidates, care must be taken to ensure that the different groups of candidates are effectively isolated so that **no information passes between them.**

### For Question 1

*Each candidate will require:*

- (i) a twig from a woody herbaceous dicotyledon, labelled **A**; It should be 10-15 cms long, should have a woody stem and fairly large leaves. The twig should be left for a few hours (or overnight) so that the leaves have obviously wilted.
- (ii) a piece of celery stalk, approximately 3 cm in length, labelled with the letter **B** and placed on a white tile. The celery stem should be prepared as follows.

Remove a stick of celery from the crown, trim approximately 5 mm from the base of the stalk, and place in red dye. The dye can be a food colouring solution or the stain eosin. The stick of celery should still have leaves. This procedure should be done at least two hours before the examination or long enough for the dye to be taken up throughout the stem. Overnight is acceptable if necessary. The stalk may then be shared between several candidates. If celery is not available a local substitute may be used. The stalk should have large vascular bundles so that the xylem can clearly be seen with the naked eye after the dye has moved through it. Please record any substitution on the supervisor's notes.

- (iii) a sharp knife or scalpel.

**For Question 2**

*Each candidate will require:*

- (i) a spring of unstretched length about 40 mm, such that a mass of 100g stretches it about 40 mm;
- (ii) a mass hanger for carrying the masses;
- (iii) access to a selection of masses to make 50, 100, 150, 200 g to add to the carrier;
- (iv) a stand and clamp with suitable fixing point for the spring;
- (v) a metre rule;
- (vi) a second clamp to hold the metre rule vertical;
- (vii) a small piece of plasticine;
- (viii) a pin.

**For Question 3**

*Each candidate will require:*

- (i) 6 test-tubes. Some may need rinsing and reusing;
- (ii) 3 strips of magnesium ribbon, each about 2 cm length;
- (iii) a means of generating carbon dioxide. This should be a large test-tube with bung and delivery tube long enough for gas to be bubbled through a solution in another test-tube;
- (iv) a few grams of calcium carbonate (marble chips) to be used for generating carbon dioxide.
- (v) about 30 cm<sup>3</sup> dilute hydrochloric acid;
- (vi) about 20 cm<sup>3</sup> of each of the following solutions:  
aqueous sodium carbonate, about 1.0 mol dm<sup>-3</sup>, labelled "solution **A**";  
dilute sulphuric acid, about 1.0 mol dm<sup>-3</sup>, labelled "solution **B**";  
limewater, labelled "solution **C**".

Spare materials and equipment should be available and can be provided without penalty. **Candidates should be made aware of this.**

*Information required from Supervisor:*

**The Supervisor is asked to carry out the experiments and to enter the results on a spare copy of the examination paper, clearly marked 'Supervisor's Results' and showing the Centre number. This should then be returned with the scripts. Failure to do so may cause the candidates to be penalized.**

**This form must be completed and returned in the envelope with the scripts together with the seating plan and the Supervisor's Results mentioned on page 3.**

**May/June 2008**

*General*

The Supervisor is invited to give details of any difficulties experienced by particular candidates giving their names and candidate numbers. These should include reference to:

- (a) difficulties due to faulty apparatus;
- (b) accidents to apparatus or materials;
- (c) physical handicaps, e.g. short sight, colour blindness;
- (d) any other information that is likely to assist the Examiner, especially if this cannot be discovered in the scripts;
- (e) any help given to a candidate.

*The Supervisor is asked to supply the following information:*

Plan of work benches, giving details by candidate numbers of the places occupied by the candidates for each session and a copy of the 'Supervisor's Results'.

NAME OF CENTRE .....

SIGNED .....  
*Supervisor*

CENTRE NUMBER .....

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)



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 Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.