UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

COMBINED SCIENCE **0653/05**

Paper 5 Practical Test

October/November 2005

CONFIDENTIAL INSTRUCTIONS

Great care should be taken 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 4 which must be completed and returned with the scripts.

If you have any 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.

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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).

It is expected that candidates will have either a watch or sight of a clock with second hand.

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) 10 seeds that have been soaking in water overnight, labelled '**A**'. They must not soak for longer than 24 hours. The best seeds to use for the experiment are seeds from cereal crops, e.g. barley or wheat;

(ii) 10 of the same type of seed that have been allowed to germinate, labelled '**B**'. They should have formed roots, and coleoptiles of at least 5 mm length but not leaves. This should take a few days depending on the ambient temperature.

(iii) a white tile;

(iv) a glass rod;

(v) a spatula;

(vi) 10 cm^3 iodine solution;

(vii) 20 cm^3 Benedict's solution;

(viii) 2 test-tubes, size 125 x 15 mm;

(ix) access to a water bath. The water bath should be hot and simmering. Several candidates can share the same water bath if this can be done without overcrowding. There should be some means of support for candidates' test-tubes in the water bath;

(x) access to water for rinsing white tile;

(xi) a pair of scissors or a scalpel;

Supervisors must check in advance that the two batches of seeds give different results when tested with Benedict's solution.

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For Question 2

Each candidate will require:

(i) 80-90 g of plasticine;

(ii) access to a balance to weigh to the nearest gram;

(iii) approximately 600 mm of string to attach to the plasticine;

(iv) a retort stand and clamp;

(v) a cork cut in half or other means of holding the string in the clamp;

(vi) a stop clock or watch to record to the nearest second;

(vii) use of a metre rule to measure to an accuracy of 1 mm.

For Question 3

Each candidate will require:

(i) 2 dry hard glass test-tubes 125 x 15 mm;

(ii) 2 more test-tubes (not necessarily hard glass) and a test-tube rack;

(iii) blue litmus paper;

(iv) limewater and means of testing for carbon dioxide;

(v) a Bunsen burner;

(vi) candidates will require access to aqueous sodium hydroxide. The concentration to be about 1.0 mol dm^{-3};

(vii) about 1 g of each of the following:

zinc carbonate, labelled **A**

iron(II) sulphate ($FeSO_4.7H_20$), labelled **B**

Spare materials and equipment should be made available and can be provided without penalty.

Candidates should be made aware of this.

Information required from the 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 be returned with the scripts. Failure to do so may cause the candidates to be penalised.

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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.

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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)

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