UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

BIOLOGY **9700/03**

Paper 3 Practical Test AS

May/June 2006

CONFIDENTIAL INSTRUCTIONS

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

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 Centre number, the nature of the query and the syllabus number quoted above.

This document consists of **6** printed pages and **2** blank pages.

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UNIVERSITY of CAMBRIDGE
International Examinations

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Instructions for preparing apparatus

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

If a candidate breaks any of the apparatus, or loses any of the material supplied, the matter should be rectified and a note made in the Supervisor's Report.

Candidates must be provided with a microscope with:

- Low-power objective lens, e.g. × 10 (equal to 16 mm or $\frac{2}{3}''$)
- High-power objective lens, e.g. × 40 (equal to 4 mm or $\frac{1}{6}''$)
- Eyepiece graticule fitted within the eyepiece and visible in focus at the same time as the specimen.

Each candidate must have sole, uninterrupted, use of the microscope for at least 35 minutes.

Supervisors are advised to remind candidates that **all** substances in the examination should be treated with caution. Pipette fillers and safety goggles should be used where necessary.

In accordance with the COSHH (Control of Substances Hazardous to Health) Regulations, operative in the UK, a hazard appraisal of the examination has been carried out.

The following codes are used where relevant.

C = corrosive substance

F = highly flammable substance

H = harmful or irritating substance

O = oxidising substance

T = toxic substance

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There must be no access to the question before this examination starts (regulation 3.2.1 (e), page 36 CIE Handbook for Centres 2005). There are **no** exceptions to this. All problems with making the arrangements for this examination must be referred to Dr Rick Nelms (Product Manager) – e-mail international@ucles.org.uk, phone +44 1223 553554 or Fax +44 1223 553558.

Each candidate must be provided with the following apparatus and materials.

Question 1

Candidates will be required to carry out reducing sugar tests on a range of solutions and plant tissue.

Each candidate will require:

(i) Three test-tubes labelled **X**, **Y** and **Z**, containing 2 cm^3 of the following solutions:

Solution **Y** consisting of 20 g of glucose, made up to 1 dm^3 of solution.
Solution **Z** consisting of 20 cm^3 of solution **Y**, made up to 1 dm^3 of solution.
Solution **X** consisting of 20 cm^3 of solution **Z**, made up to 1 dm^3 of solution.

One dm^3 of solution is sufficient for at least 450 candidates

(ii) 1 cm^3 of freshly peeled potato, covered in water, in a dish, labelled **P**. Avoid using sprouting potatoes if possible.

(iii) 1 cm^3 of freshly peeled onion, covered in water, in a dish, labelled **O**.
If the scales fall apart, then ensure each candidate has approximately 1 cm^3 of onion tissue.

(iv) Benedict's solution, labelled as **Benedict's solution**.

(v) Syringe to measure 2 cm^3.

(vi) Test-tube rack or similar with two empty test-tubes and bungs.

(vii) Means of holding hot test-tubes.

(viii) Access to a waterbath. This could consist of a Bunsen burner, tripod, gauze and 250 cm^3 or similar beaker or heatproof container, half full of hot water, with thermometer that can read up to at least 100 °C. Alternatively, a small number of candidates might share an electrically heated waterbath set to at least 80 °C, provided that the candidates can be properly supervised and can move to the waterbath without disturbing each other. Please ensure that the type of waterbath used by the students is recorded on the supervisor's report.

(ix) Paper towel.

(x) Tile.

(xi) Sharp knife or scalpel.

(xii) Thick glass or wood or metal rod to crush the tissue.

(xiii) Sight of a clock.

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Question 2

Each candidate will require:

(i) Slide **S1** (from CIE).

(ii) A microscope with:

- Low-power objective lens, e.g. × 10 (equal to 16 mm or $\frac{2}{3}$″)
- High-power objective lens, e.g. × 40 (equal to 4 mm or $\frac{1}{6}$″)
- Eyepiece graticule fitted within the eyepiece and visible in focus at the same time as the specimen.

MATERIALS TO BE SUPPLIED BY CIE

(i) Question papers.

(ii) Slide **S1** (question 2, shared between two candidates).

RETURN OF EXAMINATION MATERIALS TO CAMBRIDGE

Immediately after the examination, microscope slides **must** be returned to CIE in the containers in which they were received, using the self-adhesive label for the parcel. They must **not** be included in the parcel of scripts. It may be possible to buy the slides, in which case an order form will be enclosed with the slides, and should be returned to CIE using the self-adhesive label for the letter. Slides and containers not returned in good condition will be charged at a rate of £3 per item to which may be added administrative costs.

REPORT FORM

The teacher responsible for the examination is asked to fill in the Report Form on pages 7 and 8 of these Confidential Instructions. For Centres where more than one script envelope is used, there must be a copy of the complete Report Form in each script parcel.

These report forms are vital in order to allow the examiners to assess all candidates as fairly as possible and should always be completed by every Centre.

A copy of the seating plan for the examination room must also be enclosed in each script parcel.

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This form should be completed and sent to the examiner with the scripts.

REPORT ON PRACTICAL BIOLOGY

A Level

May/June Session 2006

The Supervisor or Teacher responsible for the subject should provide the following information.

1. Was any difficulty experienced in providing the necessary materials? If so, give brief details.

2. Give details of any difficulties experienced by particular candidates, giving names and candidate numbers. Reference should be made to:

(a) difficulties arising from faulty specimens or microscopes;

(b) accidents to apparatus or materials;

(c) assistance provided in case of colour-blindness;

(d) any other information that is likely to assist the Examiner, especially if this cannot be discovered from the scripts.

All other cases of individual hardship, e.g. illness or disability, should be reported direct to CIE on the normal 'Special Consideration Form' as detailed in Part 6 of the Handbook for Centres.

Please indicate the type of waterbath used by candidates to heat their test tubes.

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3. Enclose a plan of work benches with the scripts, giving details of the candidate numbers of the places occupied by the candidates for each session. The space below can be used for this, or it may be on separate paper.

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) .....

Centre number .....

Centre name .....

If scripts are required by CIE to be despatched in more than one envelope, it is essential that a copy of the relevant Supervisor's report and the appropriate seating plan(s) are sent inside **each envelope**.

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