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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Level

BIOLOGY **9700/05**

Paper 5 Practical Test A2

October/November 2005

CONFIDENTIAL INSTRUCTIONS

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

Instructions for preparing apparatus

These instructions give details of the apparatus 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 Biology teacher to test the apparatus appropriately. **No access to the question paper is permitted in advance of the examination session.**

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 40 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 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

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 **3** printed pages, **3** blank pages and a Report Form.

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International Examinations

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Instructions to Supervisors:

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

To be supplied by the Centre

Question 1
Candidates will be required to investigate the effects of different solutions on the cell sap of red onion epidermal cells.
Each candidate will require:

[O] [H] (i) About 5 cm^3 of solution **A**, a 1 mol dm^{-3} sodium nitrate solution in a Petri dish or small beaker. Solution **A** can be made up by dissolving 8.5 g of sodium nitrate **[O] [H]** in 80 cm^3 of water and making up to 100 cm^3. This container of sodium nitrate solution should be labelled **solution A**.

[T] [H] (ii) About 5 cm^3 of solution **B**, a 0.1 mol dm^{-3} lead nitrate solution in a Petri dish or small beaker. Solution **B** can be made up by dissolving 3.3 g of lead nitrate **[T] [H]** in 80 cm^3 of water and making up to 100 cm^3. This container of lead nitrate solution should be labelled **solution B – toxic**, After the examination any unwanted solution B should be disposed of in accordance with local regulations.

(iii) About 10 cm^3 distilled water in a Petri dish, labelled as such.

(iv) One piece of fleshy scale leaf from a fresh **red** onion, labelled **C**.

(v) 3 dropper pipettes, or a dropper pipette and a means of washing it.

(vi) Forceps.


C

(vii) A scalpel or sharp knife.

(viii) Tile or cutting surface.

(ix) Four microscope slides with cover slips.

(x) Means of marking glassware.

(xi) A stopclock or stopwatch or sight of clock with a second hand.

(xii) 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.

(xiii) Paper towel or filter paper or blotting paper for absorbing liquid

Question 2

No additional materials will be required for Question 2.

MATERIALS TO BE SUPPLIED BY CAMBRIDGE

Question papers.

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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 from these confidential instructions. For Centres where more than one script envelope is used, there must be a copy of the complete Report Form in every script packet.

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.

Further comments should be made on the Report Form for individual candidates where there is any need.

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

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This form must be completed and sent to the Examiner with the scripts.

REPORT ON PRACTICAL BIOLOGY

A Level

October/November Session 2005

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 overleaf 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.

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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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