UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Level

BIOLOGY **9700/05**

Paper 5 Practical Test A2

May/June 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 and reagents (details on page 2) 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 a 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

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.

SP (MML 8289 4/04) S81910/2
© UCLES 2005

UNIVERSITY of CAMBRIDGE
International Examinations

[Turn over

There must be no access to the question paper before this examination starts (regulation 3.2.7 (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.

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 effect of a leaf extract on a solution containing the dye DCPIP.

Each candidate will require:

(i) 40 cm^3 of fresh leaf (e.g. spinach) labelled **C1** (e.g. roughly 10 cm x 4 cm)

(ii) 20 cm^3 of solution, labelled **C2** and supplied with a teat pipette. The solution should be presented to the candidate in a test tube stood in a beaker of ice cold water.

This solution, **C2**, is made by making 6 g of sucrose and 0.01 g of KCl up to 100 cm^3 with distilled water.

(iii) 5 cm^3 of 0.1% DCPIP solution. The solution can be made by dissolving 1 g of DCPIP up to 1 dm^3 in distilled water labelled **C4** and supplied with a teat pipette. It should also be presented to the candidate in a test tube stood in the same beaker of ice cold water as the buffer solution.

(iv) Petri dish base or lid.

(v) Three 3 cm lengths of capillary tube.

(vi) Plastic specimen tube between 5 and 10 cm tall, and between 1 and 2 cm wide, made of plastic that will not shatter or crack when gripped tightly.

(vii) Glass rod.

(viii) White tile.

(ix) Sharp knife or scalpel.

(x) 1 cm^3 of sand, labelled **C3** with spatula.

(xi) Aluminium foil to completely cover the Petri dish and the three capillary tubes.

(xii) Bench lamp.

(xiii) Sight of stopclock, stopwatch or clock with second hand.

(xiv) Distilled water, e.g. in a small plastic or glass bottle or other container, labelled **distilled water**.

(xv) Paper towel or other means of drying up water.

(xvi) Wax pencil or waterproof glass marker or at least 3 small self-adhesive labels suitable for marking glassware.

© UCLES 2005

Question 2

(i) 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.

(ii) Slide **K1**, to be supplied by Cambridge.

MATERIALS TO BE SUPPLIED BY CAMBRIDGE

(i) Question papers.

(ii) Slide **K1** (question 2 and 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 at the back of these Confidential Instructions. Any specific problems encountered by individual candidates must be included on this form or on an attached piece of paper. For Centres where more than one script envelope is used, there must be a copy of the complete Report Form in each 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.

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

© UCLES 2005

BLANK PAGE

BLANK PAGE

BLANK PAGE

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

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

REPORT ON PRACTICAL BIOLOGY

A Level

May/June 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 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.

© UCLES 2005

[Turn over

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**.

© UCLES 2005