



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

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**BIOLOGY**

**9700/32**

Paper 3 Practical Test AS

**October/November 2007**

CONFIDENTIAL INSTRUCTIONS

**2 hours**

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

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If you have any problems or queries regarding these Instructions, please contact CIE  
by e-mail: International@cie.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.

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



### 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.  $\times 10$  (equal to 16 mm or  $\frac{2}{3}$ " )
- High-power objective lens, e.g.  $\times 40$  (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 55 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

**N** = harmful to environment

Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination. Centres are also referred to the Handbook for Centres, and in particular Section 3.1.2 (c) (i), Security of Question Papers and Examination Materials, as well as 3.3.11.1, Practical Examinations in Science Subjects.

If there are any difficulties with any aspect of setting up this practical examination that the Centre is not able to sort out, it is essential for Centres to contact the Product Manager, Dr Rick Nelms, as soon as possible by e-mail to [international@cie.org.uk](mailto:international@cie.org.uk), by fax to +44 1223 553558 or by phone to +44 1223 553554.

## Confidential Instructions

*Each candidate must be supplied with the following apparatus and materials.*

### Question 1

Candidates will be expected to carry out a simple test for reducing sugar and then determine the change in length of samples of potato strips using glucose solution.

Each candidate will require:

- (i) A beaker containing 40 cm<sup>3</sup> of a 1.0 mol dm<sup>-3</sup> glucose solution, labelled **S**.

The solution should be prepared by dissolving 18 g of glucose in 100 cm<sup>3</sup> of distilled water.

- (ii) Four strips of freshly cut, peeled potato tuber, approximately 5 mm × 5 mm and longer than 50 mm. The strips should be placed in a covered Petri dish or small plastic bag, labelled **P**.

Ideally they should be prepared immediately before the examination.

If prepared in advance, strips should be stored in a plastic bag and kept cool, to avoid any loss of water or enzymic browning.

Slices of potato can be cut with a large kitchen knife and strips produced using a scalpel. Please do not use cork borers as this may damage the tissues.

If potato is not available, a locally available alternative such as sweet potato or carrot may be substituted. Please record any substitutes on the report form on page 7 of the confidential instructions.

- (iii) A beaker containing 50 cm<sup>3</sup> of distilled water, labelled **distilled water**.

- (iv) Paper towels.

- (v) Three Petri dishes or similar small containers.

- (vi) A ruler measuring in mm.

- (vii) A scalpel or sharp knife.

- (viii) Sight of stop watch or clock with second hand.

- (ix) A white tile or other similar surface on which to cut, with a minimum size of 20 cm × 20 cm.

- (x) Forceps.

- [H] (xi) Benedict's solution in a suitable small bottle with dispenser, labelled **Benedict's solution**.

- (xii) Access to a water bath at more than 80 °C or tripod, gauze, large beaker and burner for heating.

- (xiii) Test-tube rack with two test-tubes.

- (xiv) Means of holding test-tubes.

- (xv) Syringe or measuring cylinder to measure 20 cm<sup>3</sup>.

- (xvi) Means of washing pipette.

- (xvii) Means of labelling glassware such as a permanent marker, wax pencil or small labels and pencil.

## Question 2

Each candidate will require:

- (i) Slide **K1** (from Cambridge)
- (ii) Transparent ruler to measure to an accuracy of 1 mm (this may be the same ruler as in question 1)
- (iii) A microscope with:
  - Low-power objective lens, e.g.  $\times 10$  (equal to 16 mm or  $\frac{2}{3}$ "
  - High-power objective lens, e.g.  $\times 40$  (equal to 4 mm or  $\frac{1}{6}$ "
  - Eyepiece graticule (from Cambridge) fitted within the eyepiece and visible in focus at the same time as the specimen. The plastic graticules supplied by Cambridge should be retained by the Centre after the examination. Centres may use their own eyepiece graticules.

## MATERIALS TO BE SUPPLIED BY CIE

- (i) Question papers.
- (ii) Slide **K1** (question 2, shared between two candidates).
- (iii) One graticule scale and instructions for its use as an eyepiece graticule.

## 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 £4 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.

The teacher or supervisor responsible for the subject should carry out **1(a)** and **1(b)(i)** during the examination, out of sight of the candidates, and report the results on the Report Form.



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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 the 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**.

