



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

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BIOLOGY

5090/03

Paper 3 Practical Test

October/November 2007

CONFIDENTIAL INSTRUCTIONS

1 hour 15 minutes

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 **3** printed pages, **3** blank pages and a Supervisor's report.



Read these Instructions first

These instructions give details of the apparatus required by each candidate for each experiment on 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.

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.**

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

Instructions to Supervisors

Each candidate requires:

For question 1

- (i) 3 seedlings, such as maize (*Zea*), peas or beans, germinated long enough for roots to be showing as well as the coleoptile and, possibly, the plumule. Remains of each grain should be visible on the seedlings. Presented in a moist dish.
- (ii) Fixed-blade scalpel or sharp knife.
- (iii) Length of Visking tube, 1–2 cm diameter, approximately 20 cm long, knotted **tightly** at one end. The Visking tube should have been opened at the other end and presented with a teat pipette or small syringe inserted. The Visking tube is easier to open when wet but may be presented to candidates wet or dry.
- (iv) 2 teat pipettes in addition to that in (iii).
- (v) Means of introducing chopped seeds into Visking tubing, e.g. funnel and thin rod, or folded card.
- (vi) White tile.
- (vii) 2 large test-tubes, supported in rack or beaker.
- (viii) Forceps.
- (ix) 3 test-tubes.
- (x) Waterbath with means of heating for reducing sugar test.
- [H] (xi) Iodine in potassium iodide solution in a bottle, with dispenser, labelled **iodine solution**.
- (xii) 10–15 cm³ in test-tube, with dispenser or pipette, 1% starch 'solution' consisting of 10 g starch powder plus 10 g glucose made up to a litre of solution using hot water. This is labelled **starch solution**.
- (xiii) 30–50 cm³ Benedict's solution in a bottle, with dispenser, labelled **Benedict's solution**.
- (xiv) Access to tap and sink.
- (xv) Paper towel.
- (xvi) Paper-clip or clothes peg.
- (xvii) Sight of clock.
- (xviii) ruler, mm.

Additional material for question 2:

- (i) Specimen labelled **W1**, a leaf, ovate in shape, between 6 and 10 cm long, with a toothed or wavy margin, preferably fairly stout rather than delicately thin.
- (ii) Specimen labelled **W2**, a short piece of stem of an upright grass with a node bearing one leaf.
- (iii) Hand lens.

- 4 A plan of work benches, giving details of the candidate numbers of the places occupied by candidates for each session, must be enclosed with the scripts. 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**.

