



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

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BIOLOGY

5090/31

Paper 3 Practical Test

October/November 2010

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@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.

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



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 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 in the left margin where relevant.

C = corrosive substance

F = highly flammable substance

H = harmful or irritating substance

O = oxidising substance

T = toxic substance

Confidential Instructions

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

Question 1

Each candidate will require:

- (i) Slices of (Irish) potato tuber, approximately 2–3 mm thick and without peel, sufficient for candidates to cut 6 strips of tissue 70 mm long by 10 mm wide.

The slices should be soaked in a solution of 8 g sodium chloride per dm^3 of solution, for $1\frac{1}{2}$ hours before the examination and must be presented to candidates in a suitable container, covered by the solution.

- (ii) Sharp knife or scalpel, to cut the potato.
- (iii) Three (half Petri) dishes, approx. 8–10 cm diameter, with means of labelling the dishes.
- (iv) Supplies of the following solutions of sodium chloride, approximately $75\text{--}100\text{ cm}^3$ of each, in beakers, labelled with the letter indicated.

Solution A 75 g per dm^3

Solution B 20 g per dm^3

Solution C 3 g per dm^3

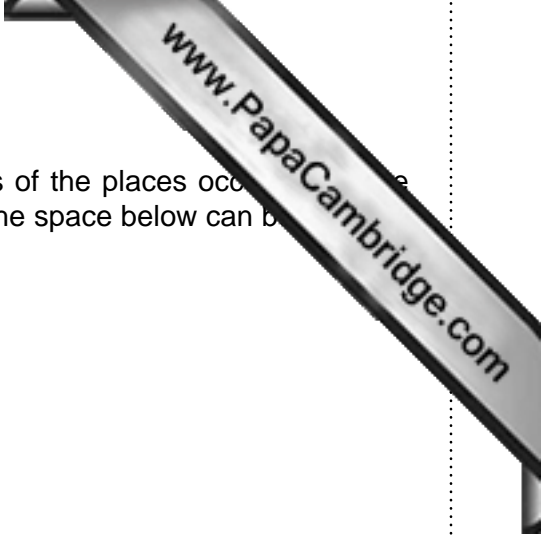
The solutions should be made in bulk, and be of the concentrations stated.

- (v) Paper towel.
- (vi) Ruler, mm.
- (vii) Sight of clock.
- (viii) White tile.
- (ix) Forceps.

Question 2

Each candidate will require:

- (i) A mosquito (adult), in a watch glass or other small container, in 40% ethanol (IMS), labelled X.
- (ii) Hand lens ($\times 10$ or $\times 8$, preferably).
- (iii) Microscope slide.
- (iv) Cover glass.
- (v) Ruler, mm (as provided for **Question 1**).
- (vi) Teat pipette.
- (vii) Forceps (as provided for **Question 1**).



- 3 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**.

