



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

BIOLOGY

5090/31

Paper 3 Practical Test

May/June 2011

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.



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.

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

Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination. There are **no** exceptions to this. Centres are also referred to the Handbook for Centres 2006, 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 resolve, it is essential for Centres to contact the Product Manager as soon as possible by e-mail to 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

Each candidate will require:

- (i) Benedict's solution, with dispenser, labelled **Benedict's solution**.
- (ii) Waterbath or other suitable means of heating for reducing sugar test.
- (iii) 5 cm³ sucrose / glucose solution in a large test-tube, labelled **S1**. This is prepared by dissolving 200g sucrose and 100g glucose in 1000 cm³ water.
- (iv) Thin slice (approximately 0.5 cm) of **fresh** irish potato tuber wrapped in polythene to prevent discolouration presented on a tile/plate (not frozen or dried).
- (v) 2 large test-tubes.
- (vi) Means of supporting test-tubes, e.g. beaker/rack.
- (vii) Test tube holder.
- (viii) Cutting implement to chop up the potato.
- (ix) Three shallow dishes e.g. petri dishes, labelled **A**, **B** and **C**.
dish **A** to have **S1** solution [concentrated sucrose solution as described in (iii)]
dish **B** to have diluted **S1** solution [dilute **S1** with equal volume of distilled water]
dish **C** to have distilled water only
Each dish to have submerged in the respective solution a piece of irish potato exactly 5.0 cm in length and 1 cm wide × 0.5 cm thick.
To be set up at least 1 hour before the examination starts.
- (x) Ruler, mm.
- (xi) Paper towel.
- (xii) Means to handle potato strips e.g. forceps/gloves.
- (xiii) Distilled water.

Question 2

Each candidate will require:

- (i) 50 cm³ Vitamin C (ascorbic acid) 0.1 g/100 cm³ in a small beaker, labelled **standard vitamin C solution**.
- (ii) 50 cm³ (0.3g/100 cm³) vitamin C in a small beaker, labelled **S2**.
- (iii) 100 cm³ 0.1% DCPIP (phenol-indo-2,6-dichlorophenol) in a small beaker, labelled **blue dye DCPIP**.
This can be purchased from biological suppliers in tablet or powder form. This solution needs to be made fresh on the day of the examination.
- (iv) 6 large test-tubes.
- (v) Means of labelling e.g. glass marking pens or labels.
- (vi) 4 × 10 cm³ syringes.
- (vii) Means of supporting test-tubes e.g. beaker/rack (see also **Question 1**).
- (viii) Means of washing out syringes.

Question 3

Each candidate will require:

- (i) Complete preserved mature locust, presented in a shallow container, labelled **S3**.
It is important that the legs are complete.
- (ii) Hand lens (if possible × 10).

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

REPORT ON PRACTICAL BIOLOGY

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The Supervisor or Teacher responsible for the subject should provide the following information.

1 Was any difficulty experienced in providing necessary material for **Question 1**?

Was any difficulty experienced in providing necessary material for **Question 2**?

Was any difficulty experienced in providing necessary material for **Question 3**?
Describe the specimens used for **S3**.

- 2** Give details of any difficulties experienced by particular candidates, giving names and candidate numbers. Reference should be made to:
- (a) difficulties with specimens or materials;
 - (b) accidents to apparatus or materials;
 - (c) any other information that is likely to assist the Examiner, especially if this cannot be discovered from the scripts.



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.

- 3 A plan of work benches, giving details of the candidate numbers of the places occupied by the 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**.

