



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

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**BIOLOGY**

**0610/51**

Paper 5 Practical Test

**October/November 2012**

**CONFIDENTIAL INSTRUCTIONS**

**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 Cambridge  
by email    [International@cie.org.uk](mailto: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 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. **Testing must be done out of sight of all candidates. No access to the question paper is permitted in advance of the examination.** Centres are reminded that candidates are expected to follow the instructions on the question paper and record all their results. They will not be penalised if these results are not what they expect.

The Supervisor should make sure the Supervisor's Report is fully completed and a copy is enclosed with each packet of scripts.

It is assumed that the ordinary apparatus of a science laboratory will be available, including a supply of purified water (distilled or deionised).

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.**

**All specimens should carry only the code letters and numbers as indicated and their identity should not be revealed to the candidates.**

Supervisors should ensure that all specimens have the correct identity attached to the specimen and that these are **not** removed during 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.

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 where relevant:

**C** = corrosive substance

**F** = highly flammable substance

**H** = harmful or irritating substance

**O** = oxidising substance

**T** = toxic substance

**N** = harmful to the environment

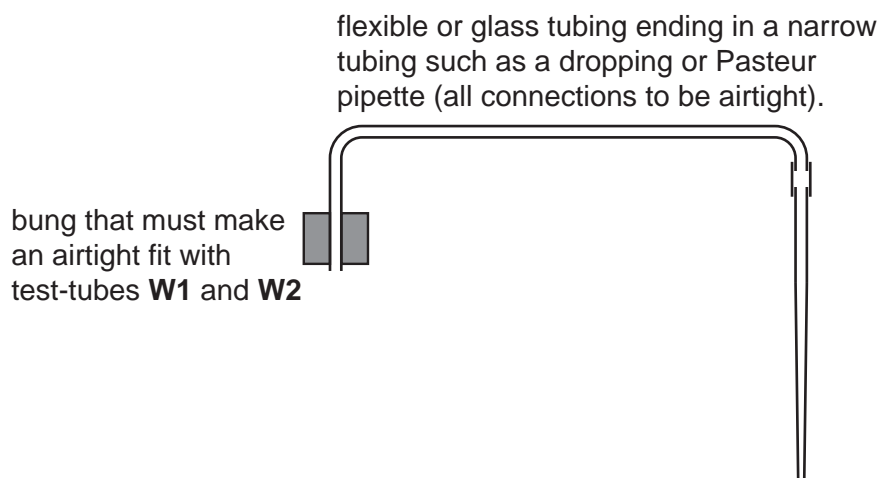
Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination.

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 **email** to [international@cie.org.uk](mailto:international@cie.org.uk), by **fax** to +44 1223 553558 or by **phone** to +44 1223 553554.

## Question 1

Each candidate should be provided with:

- (i) delivery tube, set up as shown in Fig. 1.1



**Fig. 1.1**

- (ii) 20 cm<sup>3</sup> of two yeast mixtures each to be provided in test-tubes labelled **W1** and **W2** respectively

Prepare the yeast mixtures approximately 30 minutes before the examination starts. It is important that the yeast mixtures are fresh, active and well mixed.

Mixture **W1** can be prepared in bulk and contains:

- 5 g dried baker's yeast
- 250 ml 10% sucrose solution

This is sufficient for 12 candidates.

Stir **W1** to mix evenly and then distribute 20 cm<sup>3</sup> into labelled test-tubes for the candidates. It is essential that each candidate receives fresh, active and well mixed yeast mixture.

Mixture **W2** can be prepared in bulk and contains:

- 15 g dried baker's yeast
- 250 ml 10% sucrose solution

This is sufficient for 12 candidates.

Stir **W2** to mix evenly and then distribute 20 cm<sup>3</sup> into labelled test-tubes for the candidates. It is essential that each candidate receives fresh, active and well mixed yeast mixture.

Both test-tubes **W1** and **W2** should be presented in a large beaker, half filled with water. The water must be between 30 °C and 40 °C.

- (iii) paper towels
- (iv) stop-clock or view of clock with minute hand
- (v) one test-tube in a test-tube rack

- (vi) water in a suitable container, labelled **water**  
Sufficient water is needed for the candidate to fill one test-tube and to add additional cool water to their apparatus if too much warm water is added.
- (vii) thermometer ( $-10^{\circ}\text{C}$  –  $110^{\circ}\text{C}$ )
- (viii) access to water at  $40^{\circ}\text{C}$  –  $50^{\circ}\text{C}$ )  
Candidates will raise their hand to indicate if this is required.

The Supervisor (**not** the Invigilator) is expected to carry out the practical aspects of **Question 1** and record their results in the space provided in the Supervisor's Report. This must be done during the examination, using the same apparatus and mixtures as the candidates but out of sight of candidates.

## Question 2

Each candidate should be provided with:

- (i) two dicotyledonous leaves – one simple, non-hairy, non-divided leaf, with a shiny upper surface, e.g. *Rhododendron*, *Hibiscus*, labelled **W3**, one divided leaf with more than three leaflets, e.g. *Acacia*, *Rosa*, *Ceris*, etc labelled **W4**

Present both leaves on damp tissue so that the leaves do not dry out.

- (ii) hand lens (at least  $\times 6$ )

Supervisors must provide in the Supervisor's Report the identity and an image (ideally a photograph) of **W3** and **W4**.

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

**SUPERVISOR'S REPORT ON PRACTICAL BIOLOGY**

**IGCSE**

**October/November Session 2012**

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

- 1** Was any difficulty experienced in providing 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 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 Cambridge on the normal 'Special Consideration Form' as detailed in the Handbook for Centres.



- 3 During the examination, the Supervisor should, **out of sight of the candidates**, carry out **Question 1**, using the same apparatus and mixtures as the candidates. Results should be recorded in the space below (**not** on a spare Question Paper). The Invigilator should **not** carry out **Question 1**.

Please record the range of the room temperature in the laboratory during the examination

.....

For **Question 2**, please identify leaves **W3** and **W4** and attach a photograph of both. If a photograph is not possible, please attach a detailed line drawing of each type of leaf.

Identification of leaf **W3**

.....

Identification of leaf **W4**

.....

- 4 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.

**Declaration** (to be signed by the Principal or the Examinations Officer)

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 to be dispatched in more than one packet, it is essential that a copy of the Supervisor's Report and the appropriate seating plan(s) are inside **each packet**.



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