



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

**BIOLOGY**

**0610/52**

Paper 5 Practical Test

**February/March 2017**

**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 Confidential Instructions, please contact Cambridge  
by email [info@cie.org.uk](mailto:info@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 eye protection 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:

<b>C</b> corrosive	<b>MH</b> moderate hazard
<b>HH</b> health hazard	<b>T</b> acutely toxic
<b>F</b> flammable	<b>O</b> oxidising
<b>N</b> hazardous to the aquatic 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 [info@cie.org.uk](mailto:info@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) four potato sticks in a covered Petri dish
- (ii) one large test-tube containing 25 cm<sup>3</sup> of 0.50 M sucrose solution labelled **A**
- (iii) one large test-tube containing 25 cm<sup>3</sup> of distilled water labelled **B**
- (iv) one large test-tube containing 25 cm<sup>3</sup> of 1.00 M sucrose solution labelled **C**
- (v) one large test-tube containing 25 cm<sup>3</sup> of 0.25 M sucrose solution labelled **D**
- (vi) one large test-tube rack
- (vii) large beaker labelled **waste**
- (viii) a white tile and marker pen
- (ix) sight of a clock or timer
- (x) a ruler scaled in mm
- (xi) paper towels for spillages

**Preparation of the potato sticks**

Irish potato (*Solanum tuberosum*) should be cut to the same length which must be at least 50 mm long, 5 mm wide and 5 mm deep OR if using a cork borer; at least 50 mm long with a diameter of 5 mm. The outer skin should be removed and the sticks should be cut from a fresh potato. Each candidate will require four potato sticks presented in a covered dish or container such as a Petri dish.

**Preparation of sucrose solutions**

1 dm<sup>3</sup> of each sucrose solution will provide enough solution for a maximum of 40 candidates

*1.0 M (342 g dm<sup>-3</sup>) sucrose solution*

Dissolve 342 g of sucrose (laboratory grade sucrose is not required, table sugar is adequate) in 700 cm<sup>3</sup> of distilled water in a 1 dm<sup>3</sup> container.

Stir continuously and warm until all the sucrose has dissolved. Add distilled water to make up to 1 dm<sup>3</sup>.

*0.5 M (171 g dm<sup>-3</sup>) sucrose solution*

Pour 500 cm<sup>3</sup> of 1.0 M sucrose solution into a 1 dm<sup>3</sup> container and add 500 cm<sup>3</sup> of distilled water. Stir to mix the solution.

*0.25 M (85.5 g dm<sup>-3</sup>) sucrose solution*

Pour 500 cm<sup>3</sup> of 0.5 M sucrose solution into a 1 dm<sup>3</sup> container and add 500 cm<sup>3</sup> of distilled water. Stir to mix the solution.

**Question 2**

- (i) one large insect-pollinated flower with half of the petals removed on one side, so that the reproductive organs are clearly visible.
- (ii) a hand lens at least  $\times 6$  magnification
- (iii) a ruler scaled in mm

The Supervisor (**not** the Invigilator) should carry out the practical aspects of **Question 1** and provide a sketch or photograph of one of the flowers provided for **Question 2**. They should record their results in the space provided in the Supervisor's Report. This must be done during the examination, using the same apparatus and reagents as the candidates but **out of sight** of the candidates.



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

### SUPERVISOR'S REPORT

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

- 1** Was any difficulty experienced in providing the necessary materials? If so, give brief details.

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- 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;

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**(b)** accidents to apparatus or materials;

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**(c)** assistance provided in the case of colour blindness;

.....

**(d)** 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 the practical aspects of **Question 1** using the same apparatus and reagents as the candidates. Results should be recorded in the space on page 8 (**not** on a spare question paper). Attach extra sheets if necessary.

The Invigilator should **not** carry out **Question 1**.

Question 1 results:

Question 2 results:

Please provide a sketch or photograph of one of the flowers provided to candidates.

- 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 Supervisor)

The preparation of this practical 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**.