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**BIOLOGY**

**0610/52**

Paper 5 Practical Test

**February/March 2018**

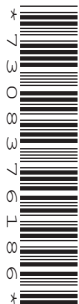
CONFIDENTIAL INSTRUCTIONS

**Great care should be taken to ensure that any confidential information given does not reach the candidates either directly or indirectly.**

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If you have any problems or queries regarding these Confidential Instructions, please contact Cambridge stating the Centre number, the nature of the query and the syllabus number quoted above.

by email [info@cie.org.uk](mailto:info@cie.org.uk)  
by phone +44 1223 553554  
by fax +44 1223 553558



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

**READ THESE INSTRUCTIONS FIRST**

These Confidential 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 Cambridge 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) two celery stalks (*Apium graveolens*) of the same length (approximately 15–20 cm), with no leaves and of approximately the same width
- (ii) two 100 cm<sup>3</sup> beakers, each containing red stain to a depth of 1 cm
- (iii) two beakers that are large enough to act as water-baths for the 100 cm<sup>3</sup> beakers. (The 100 cm<sup>3</sup> beakers must be able to fit inside the large beakers.) Label one large beaker **cool** and label the second large beaker **warm**.
- (iv) a supply of ice water at approximately 10 °C, candidates will raise their hands when they require water for their **cool** water-baths
- (v) a supply of water at approximately 40 °C, candidates will raise their hands when they require water for their **warm** water-baths
- (vi) view of a clock or timer that allows the candidate to time minutes accurately
- (vii) a knife or scalpel, suitable for cutting the celery stalks
- (viii) paper towels
- (ix) two white tiles
- (x) one marker pen suitable for writing on white tiles
- (xi) a 30 cm ruler with a mm scale
- (xii) a hand lens
- (xiii) gloves and eye protection

## Preparation

### *Red stain*

Red food colouring, icing paste or eosin (**HH**) are all suitable stains.

The red stain may be diluted but must be of a concentration strong enough to clearly stain the vascular bundles of a celery stalk. It is recommended that the red stain is filtered before use.

### *Celery stalks*

Before the exam, the Supervisor should trial the time taken for the red stain to move up the celery stalk.

Cut a 15 cm section from a fresh celery stalk. Place the stalk you have cut into a 100 cm<sup>3</sup> beaker containing 1 cm depth of red stain that has been warmed to 40 °C in a water-bath. Leave the celery stalk in the red stain for 10 minutes and maintain at a constant temperature of 40 °C. After ten minutes the red stain should not have reached the top, but should have moved part way up the celery stalk. If it has reached the top, retrieval with a longer stalk of celery.

**Question 2**

- (i) a 30 cm ruler with a mm scale

The Supervisor (**not** the Invigilator) should 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 reagents as the candidates but **out of sight** of the candidates.



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This form should be completed and sent to CIE 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;

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- (d) any other information that is likely to assist the Examiner, especially if this cannot be discovered from the scripts.

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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:

- 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**.