



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY

0610/53

Paper 5 Practical Test

October/November 2016

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
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 that 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:

C corrosive	MH moderate hazard
HH health hazard	T acutely toxic
F flammable	O oxidising
N 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, by **fax** to +44 1223 553558 or by **phone** to +44 1223 553554.

Question 1

Each candidate should be provided with:

- (i) a rack to hold a large test-tube
- (ii) a white tile
- (iii) a scalpel
- (iv) a 30 cm ruler
- (v) six potato cylinders, at least 5 cm long, in a Petri dish labelled **potato sticks**
- (vi) a large test-tube with a delivery tube and bung
(The delivery tube should be flexible with an internal diameter of 3 mm. It must be long enough to reach from the large test-tube to the measuring cylinder in the plastic tub.)
- (vii) a 1.5 dm³ plastic tub, two-thirds filled with tap water
(The tub must be long enough and deep enough to submerge and fill a 25 cm³ measuring cylinder.)
- (viii) view of a clock or timer that allows the candidate to time minute intervals accurately
- (ix) one 25 cm³ measuring cylinder and one 10 cm³ measuring cylinder
- (x) a 10 cm³ plastic syringe (without needle)
- (xi) 100 cm³ of 3% hydrogen peroxide, in a beaker labelled **hydrogen peroxide**
- (xii) a 250 cm³ beaker labelled **waste** for the student to place used hydrogen peroxide and potato cylinders into for disposal
- (xiii) a 250 cm³ beaker containing distilled water labelled **water for washing**
- (xiv) eye protection and plastic gloves

Solution preparation

3% hydrogen peroxide

MH Dilute a stock solution of hydrogen peroxide (20 vol or 6%) by adding 500 cm³ of distilled water to 500 cm³ of 6% hydrogen peroxide (to make 1 dm³). This will be sufficient for 10 candidates.

The hydrogen peroxide (6%) stock solution should be newly bought and stored in a cool dark place.

The diluted solution can be made the day before the examination and stored in a sealed container in a cool dark place. It should be allowed to reach room temperature before the examination.

Preparation of potato

It is recommended that potato cylinders are cut from Irish potato (*Solanum tuberosum*), using a 5–7 mm cork borer. You are advised to have spare potato cylinders in case students require them.

Trialling the experiment

Prior to the examination, the Supervisor should check that adding two whole potato sticks to the diluted solution will produce a 3–10 cm³ volume of oxygen gas in a three-minute time period.

Question 2

Each candidate should be provided with:

- (i) one ruler (with 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.

BLANK PAGE

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

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.

.....

.....

.....

- 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) 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:

- 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**.