



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

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**BIOLOGY**

**0610/51**

Paper 5 Practical Test

**October/November 2014**

**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 CIE

by e-mail      [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 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 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

**N** = harmful to the environment

**T** = toxic substance

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 **e-mail** 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)  $3 \times 20\text{ cm}^3$  syringe barrels (plunger removed) with the narrow end sealed with wax, as shown in Fig. 1.1.

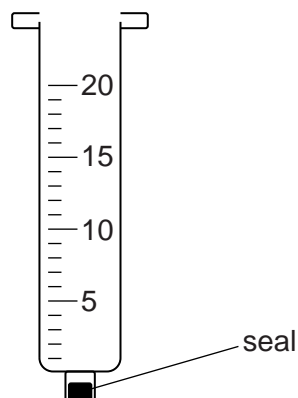


Fig 1.1.

- (ii) means of supporting three syringes vertically e.g. test-tube rack, beaker
- (iii)  $200\text{ cm}^3$  beaker (or other similar container) containing a mixture of 25 g wheat flour and 1 g sucrose, covered and labelled **flour and sugar**.
- (iv)  $25\text{ cm}^3$  yeast suspension, labelled **yeast suspension**
- (v) glass rod for stirring
- (vi) view of a clock or timer that allows the candidate to time a minute accurately
- (vii) means of labelling the syringes
- (viii) paper towels

#### Sealing syringes with wax

- Melt candle wax or paraffin wax in a shallow container (melts between  $45^\circ\text{C}$  –  $70^\circ\text{C}$ ).
- Remove the syringe plunger and dip the narrow end of the syringe in the melted wax.
- Leave to solidify.

#### Yeast suspension preparation

- Weigh 1 g dry, active **bakers'** yeast. This should be new stock.
- Add  $50\text{ cm}^3$  warm water, approximately  $35^\circ\text{C}$ .
- Stir until yeast disperses evenly.

This is sufficient for two candidates. If fresh yeast is used, use 2 g in every  $50\text{ cm}^3$  water.

Sufficient solution for the candidates should be made about 15 minutes before the start of the examination.

Before the examination, the Supervisor **must** carry out part of the investigation to determine whether the resultant bread dough is suitable for pouring and rises by an appropriate amount in a 20 minute period.

Make 25 cm<sup>3</sup> of yeast suspension and leave for 15 minutes. Seal a 20 cm<sup>3</sup> syringe as described on page 3. Weigh 25 g of wheat flour and add 1 g of sucrose. Add the yeast suspension to the flour and sugar and stir the mixture until smooth. The mixture must be thin enough to pour slowly. If the mixture is too thick, add a maximum of 5 cm<sup>3</sup> water. Pour 5 cm<sup>3</sup> of the mixture into the sealed syringe and record the volume at 5 minute intervals for 20 minutes. An increase in volume of between 8 – 12 cm<sup>3</sup> should occur. If the volume is less than 5 cm<sup>3</sup>, increase the mass of yeast in small increments and re-test.

## Question 2

Each candidate should be provided with:

- (i) a ruler with a millimetre scale
- (ii) a single leaf from a monocotyledon, with at least five clear parallel veins visible, on a piece of paper, labelled **R**  
Suitable species could be those in the Orchidaceae, e.g. *Phalaenopsis*, *Dendrobium* and *Calanthe* or any species of *Lilium* or *Iris*.  
Grass species are **not** suitable.
- (iii) a single simple oval, spear or round leaf, from a dicotyledon, with smooth or slightly serrated leaf margin, on a piece of paper, labelled **S**  
Suitable species could be any *Camellia*, *Bougainvillea* or *Mentha*.

**Leaves R and S should be of similar size, with a minimum length of 5 cm and a maximum length of 15 cm.**

**Before the examination**, the Supervisor should measure the length of a sample of the two types of leaf used and record the size range in the space provided in the Supervisor's Report.

The Supervisor (**not** the Invigilator) should carry out the practical aspects of **Question 1** and **Question 2** 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 the Examiner with the scripts.

## SUPERVISOR'S REPORT ON PRACTICAL BIOLOGY

### IGCSE

#### October/November Series 2014

*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)** 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 directly to CIE 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** and **Question 2** 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** or **Question 2**.



Please attach a photograph (or detailed line drawing) of typical leaves **R** and **S** as given to the candidates.

Range of lengths of leaf **R** .....

Range of lengths of leaf **S** .....

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

