



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

**BIOLOGY**

**5090/31**

Paper 3 Practical Test

**May/June 2013**

CONFIDENTIAL INSTRUCTIONS

**1 hour 15 minutes**

**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: [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.



## INSTRUCTIONS FOR PREPARING APPARATUS

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. **No access to the question paper is permitted in advance of the examination session.**

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.

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.**

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

**T** = toxic substance

Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination. There are **no** exceptions to this. Centres are also referred to the Handbook for Centres which cover Security of Question Papers and Examination Materials and Practical Examinations in Science Subjects.

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.

## SUPERVISOR'S INSTRUCTIONS – CONFIDENTIAL

## Question 1

Each student will need:

- (i) 20 cm length of Visking tubing 1 or 2 cm diameter, securely tied tightly at one end. It must be soaked in water before knotting tightly at one end. As shown in Fig. 1.1.

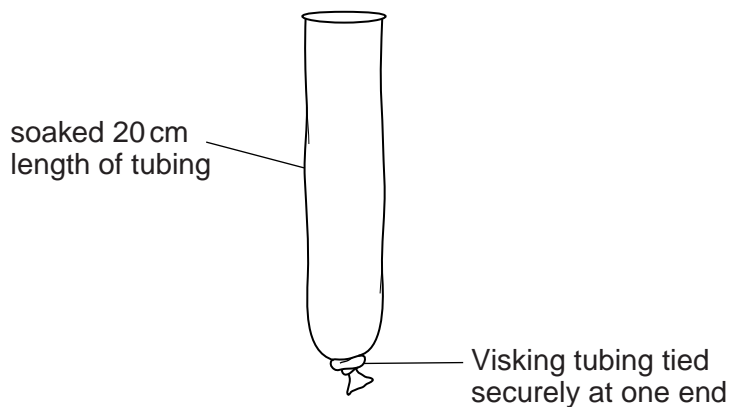


Fig. 1.1

The Visking tubing should be opened at the other end and a pipette (teat) or a small syringe inserted to keep it open. This should be presented in a shallow dish with some water to keep the outside of the tubing moist but not so the tubing fills with the water as shown in Fig. 1.2.

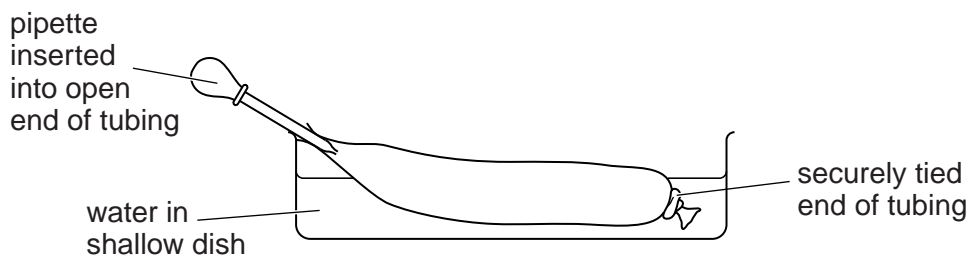


Fig. 1.2

- (ii) Small syringe to fill the tubing.
- (iii) 2 pipettes with teats/Pasteur pipettes.
- (iv) 2 large test-tubes supported in a rack or a beaker.
- (v) A beaker of water to rinse the outside of the tubing, labelled 'rinsing water'.
- (vi) Small beaker of clean water, labelled 'clean water'.
- (vii) Forceps.
- (viii) Clip or clothes peg to fix the Visking tubing to the top of the large test-tube.
- (ix) White tile.

- (x) 3 test-tubes.
- (xi) Waterbath with means of heating for reducing sugar tests.
- (xii) Iodine in potassium iodide solution in a bottle, with dispenser, labelled '**iodine solution**'.
- (xiii) Benedict's solution in a bottle, with dispenser, labelled '**Benedict's solution**'.
- (xiv) Paper towels.
- (xv) Sight of a clock.
- (xvi) 15 cm<sup>3</sup> of a mixture of 10% glucose and 1% starch prepared in hot water and to be presented in a beaker, labelled as '**Solution A**'.

### Question 2

Each student will need

- (i) 5 cm<sup>3</sup> **fresh** milk in a small shallow container, labelled '**fresh milk**'.
- (ii) Approximately 5 cm<sup>3</sup> yoghurt in a similar container, labelled '**yoghurt**'.
- (iii) Small strips of **universal indicator paper** and a colour chart to show pH range (minimum pH 4 to 8 but full range if possible).
- (iv) Forceps.
- (v) Plastic spoon.

### Question 3

Each student will need

- (i) One fresh, large regular tubular insect-pollinated flower, labelled **W1**. The flower must show stamens and carpels in the same flower. Suitable flowers include *Lobelia*, *Primula*, *Vinca*, *Nerium*, *Oleander*, *Campanula* sp., to be presented on a white tile covered with damp paper so it does not dry out or in a small container of water. This flower needs to be identified on the Supervisor's report.
- (ii) Hand lens (×10 if possible).



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

**REPORT ON PRACTICAL BIOLOGY**

**General Certificate of Education Ordinary Level**

**May/June Session 2013**

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

- 1** Was any difficulty experienced in providing the necessary material for **Question 1**?

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

Was any difficulty experienced in providing the necessary material for **Question 2**?

Please record the pH using universal indicator paper of the following:

fresh milk provided

yoghurt provided

Was any difficulty experienced in providing the necessary material for **Question 3**?

Identification of flower **W1**.

Sketch of flower with some petals removed.

- 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 CIE on the normal 'Special Consideration Form' as detailed in Part 6 of the Handbook for Centres.

- 3 A plan of work benches, giving details of the candidate numbers in the places occupied by the candidates for each session, must be enclosed with the scripts. The space below can be used for this, or it may be on separate paper.

**Declaration** (to be signed by the Principal)

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 by CIE to be despatched in more than one envelope, it is essential that a copy of the relevant Supervisor's report and the appropriate seating plan(s) are sent inside **each envelope**.

