



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

BIOLOGY (US)

0438/51

Paper 5 Practical Test

October/November 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 email Info@cie.org.uk

by phone +44 1223 553554,

by fax +44 1223 553558

stating the Center number, the nature of the query and the syllabus number quoted above.

This document consists of **7** printed pages and **1** blank page.



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.** Centers are reminded that candidates are expected to follow the instructions on the question paper and record all their results. They will not be penalized 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 deionized).

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. Droppers and safety glasses 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 substance

F = highly flammable substance

H = harmful or irritating substance

O = oxidizing substance

T = toxic substance

N = harmful to the environment

Centers 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 Centers 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) soaked seeds :-
 two lentil, *Lens culinaris*, seeds to be provided on slide or shallow container, labeled **lentil**
 two chickpea, *Cicer arietinum*, seeds on a second slide or shallow container, labeled **chickpea**
 and two soya bean, *Glycine max*, seeds on a third slide or shallow container labeled **soya bean**

These seeds need to be soaked overnight and covered with thin plastic film to prevent drying out.

The testa (seed coat) should NOT be removed.

- (ii) hand lens (at least x 6)
 (iii) white tile
 (iv) means of labeling the white tile
 (v) iodine solution (as used for testing the presence of starch), labeled **iodine solution**

To be provided in the standard container with a dropper or other means of dispensing the solution.

- (vi) paper tissues / towels
 (vii) forceps.

The Supervisor (**not** the Invigilator) is expected to 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 candidates.

Question 2

Each candidate should be provided with :

- (i) Approximately 6 cm length of fresh cucumber wrapped in film, on a white tile
- (ii) scalpel or small knife to cut thin slices
- (iii) forceps
- (iv) base of two Petri dishes or one base plus lid
- (v) means of labeling the Petri dish bases
- (vi) paper towels
- (vii) 50 cm³ of 10% sodium chloride solution in a small container, labeled **E**.

Prepare solution **E** by dissolving 10 g of sodium chloride in 100 cm³ of distilled water.

- (viii) two small syringes or droppers
- (ix) at least 50 cm³ of distilled water in a small container, labeled **water**.

Question 3

Each candidate should be provided with :

- (i) entire, empty, dried shell of a gastropod
- (ii) hand lens (at least x 6).

Supervisors must provide in the Supervisor's Report a photograph (or detailed line drawing) of the gastropod shell given to candidates. If a range of different shells are used, images of each should be included and the candidate to which each was given should be stated.

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

SUPERVISOR'S REPORT ON PRACTICAL BIOLOGY

IGCSE

October/November Session 2013

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

- 1** Was any difficulty experienced in providing 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 direct to Cambridge on the normal 'Special Consideration Form' as detailed in the Handbook for Centres.

- 3** Identify seeds provided for use in Question 1, if the specified species are not available.

.....

.....

During the examination, the Supervisor should, **out of sight of the candidates**, carry out **Question 1**, and **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). The Invigilator should **not** carry out these tasks.



For **Question 3**, please attach a photograph (or detailed line drawing) of the gastropod shell given to candidates. If a range of different shells were used, please include a photograph (or detailed line drawing) of each and identify the candidate to which each was given.

- 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 Principal or the Examinations Officer)

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)

Center number

Center 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**.

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.

University of 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.

