



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

BIOLOGY

5090/32

Paper 3 Practical Test

October/November 2012

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
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. **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 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 in the left margin where relevant.

C = corrosive substance

F = highly flammable substance

H = harmful or irritating substance

O = oxidising substance

T = toxic substance

Instructions to Supervisors

Each candidate to be provided with:

Question 1

- (i) two large test-tubes each containing 5 cm³ of 1% soluble starch solution, label one tube **A** and the other **B**, to be provided supported in a container;
(the starch needs to be a 'soluble' starch eg cornflour / fine maize flour.)
- (ii) two test-tubes each containing 2 cm³ of 1% amylase, labelled **A2** and **B2**;
(the enzyme needs to be freshly prepared just before the time of the examination. Diastase is a suitable source. Do not use the purified enzyme from bacterial or fungal origin – it is expensive and works too quickly.)
- (iii) test-tube containing 1 cm³ of water, labelled '**water**';
- (iv) test-tube containing 1 cm³ of 0.5% sodium chloride solution, labelled '**sodium chloride solution**';
- (v) two dropping pipettes;
- (vi) two white tiles with dimples / depressions if possible;
- (vii) brown iodine solution with dropper, labelled '**iodine solution**';
- (viii) sight of a clock with second hand / stop clock;
- (ix) paper towels;
- (x) means of labelling the glassware / tiles.

The following trial should be carried out as soon as these instructions are received.

- Prepare the starch solution, enzyme and sodium chloride solutions.
- Test mixing the starch, enzyme and water together and test the time needed to breakdown the starch.
- If the time required is greater than 10 minutes then adjust the concentration of the starch by diluting the starch solution with water or increasing the concentration of the enzyme.

Question 2

- (i) two soaked broad bean seeds, labelled **W1**, presented on a shallow dish.
These *Vicia faba* need to be obtained from a seed supplier and soaked overnight. Do not use frozen or tinned broad beans.
- (ii) hand lens,
- (iii) two different bean fruits with at least two visible differences apart from size:
one to be labelled **W2** to be provided in a dish.
The second to be labelled **W3** to be provided in a separate dish.
Please record the identity of **W2** and **W3** in the Supervisor's Report.
List of possible bean fruits:

climbing bean, runner bean, sugar pea, snap pea, pea, broad bean, mangetout,

- (iv) ruler (mm).

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

REPORT ON PRACTICAL BIOLOGY

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

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

.....

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

.....

Record the times for starch to be broken down by the enzyme provided

With water (tube **A**) With salt solution (tube **B**)

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

Name the two types of bean fruits **W2** and **W3** provided.

W2 **W3**

- 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 of 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**.

