



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level



**BIOLOGY**

**5090/32**

Paper 3 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 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.



**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

## SUPERVISOR'S INSTRUCTIONS

## Question 1

Each candidate should be provided with the following apparatus, disconnected but presented next to each other, so the candidate can assemble the apparatus as shown in Fig. 1.1.

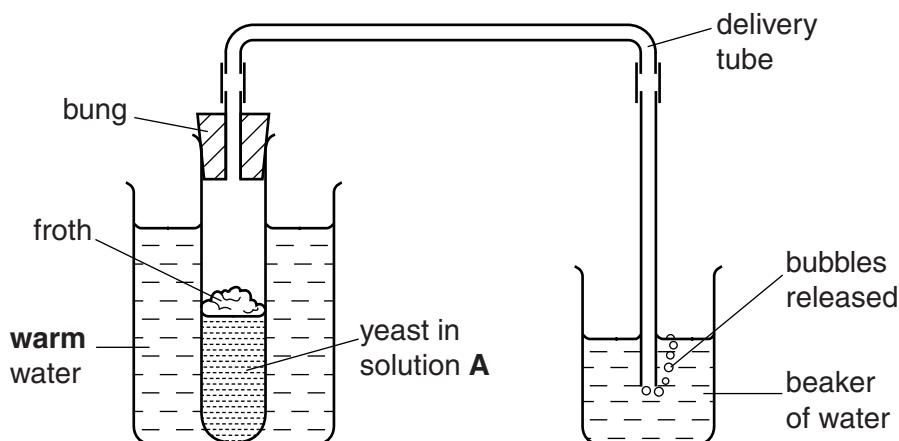


Fig. 1.1

- (i) A rubber bung fitted with a delivery tube. The delivery tube can be made from two straight glass tubes of narrow bore [5 mm or slightly less] joined by a short length of rubber or plastic tubing [approximately 12–15 cm] to give air-tight connections with the glass tubes.
- (ii) One large test-tube containing 10 cm<sup>3</sup> of 10% glucose solution, labelled **A**.
- (iii) One large test-tube containing 10 cm<sup>3</sup> of 10% sucrose solution, labelled **B**.
- (iv) 2 small packets made from paper or aluminium foil, each containing 3 g of dried yeast, each labelled '**yeast**'.
- (v) Small beaker of water at room temperature.
- (vi) Larger beaker to support the apparatus half filled with warm water at approximately 40 °C.
- (vii) Ruler (mm).
- (viii) View of a clock or timer.

The Supervisor should carry out Question 1 on the day of the examination, out of view of the candidates and complete the section in the Supervisor's Report.

## Question 2

Each candidate should be provided with:

- (i) 5 cm<sup>3</sup> 2.0% solution of freshly prepared diastase, labelled solution **C**.
- (ii) Diluted Iodine solution. This solution is more dilute than normal iodine solution for this investigation. It can be prepared by dissolving 2g of potassium iodide in 80 cm<sup>3</sup> of distilled water and making up to 100 cm<sup>3</sup> with distilled water. Then add 1 g of iodine crystals and mix thoroughly. Alternatively prepare a 0.01% solution by taking 1 cm<sup>3</sup> of stock solution and add 80 cm<sup>3</sup> of distilled water and make up to 100 cm<sup>3</sup> with distilled water.  
This diluted iodine solution should be presented to candidates in a bottle or container with a pipette, labelled '**iodine solution for use with Q2**'.
- (iii) Water – at least 50 cm<sup>3</sup> of tap water in a beaker or container labelled '**water for use with Q2**'.
- (iv) Petri dish [base plus lid].
- (v) Starch Paper: plain paper as used for photocopying or typing, cut to fit inside the Petri dish. Please test prior to the examination, to ensure this paper is already coated with starch.
- (vi) Six small 5 mm circles of filter paper. [use a standard hole punch to produce these] to be presented in a suitable container and labelled '**filter paper discs**'.
- (vii) Teat pipette.
- (viii) Forceps, blunt ended [metal].
- (ix) Container, empty, labelled '**for waste**'.
- (x) Paper towels.
- (xi) View of a clock or timer.
- (xii) Safety goggles/glasses.

The Supervisor should carry out Question **2(a)** prior to the day of the examination, using similar materials to those that will be supplied later to candidates. If the solution **C** does not create a clear zone around the filter paper discs on the stained paper in the bottom of the petri dish, then adjust the concentration of the diastase so there is a clear zone in 6 minutes.

Once the examination has started, the Supervisor should complete Question **2(a)** out of sight of the candidates, using the same materials supplied to the candidates. The Supervisor should report their observations on the Supervisor's report form in the space provided.



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

### SUPERVISOR'S REPORT

#### General Certificate of Education Ordinary Level

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 material for Question 1?

Please record the following:

Room temperature .....

Solution	Number of bubbles of gas released in one minute	
	first count	second count
<b>A</b>		
<b>B</b>		

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

Please record the following:

time /mins	observations		
	1st disc	2nd disc	3rd disc
0			
1			
2			
3			
4			
5			

time /mins	diameter of zone / mm		
	1st disc	2nd disc	3rd disc
6			

- 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 inside **each envelope**.

