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CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Level

BIOLOGY **9700/05**

Paper 5 Practical Test A2

October/November 2003

CONFIDENTIAL INSTRUCTIONS

Great care should be taken to ensure that any confidential information given does not reach the candidates either directly or indirectly.

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.

Candidates must be provided with a microscope with low power and high power objectives (e.g. $\frac{2}{3}$in and $\frac{1}{6}$in). Each candidate must have the sole use of a microscope for 20 minutes.

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

If you have any problems or queries regarding these Instructions, please contact CIE
by e-mail: International@ucles.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 **3** printed pages and **1** blank page.

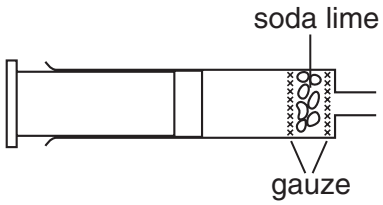
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Each candidate must be supplied with the following apparatus and materials.

To be supplied by the Centre

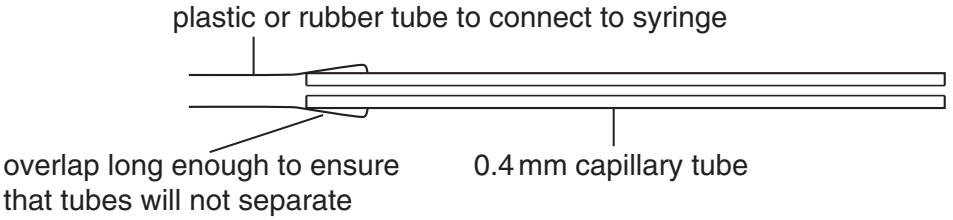
Question 1

(i) A 5 cm^3 plastic disposable syringe set up as shown.



[C] Freshly obtained soda lime should be used. If the syringes are set up before the examination they should be kept in a glass jar with a tight fitting lid to prevent the soda lime taking up carbon dioxide from the air.

(ii) A 10 cm length of 0.4 mm bore capillary tube connected to plastic or rubber tubing as shown.



(iii) Five germinating mung beans or other small bean seeds **that will all fit into the syringe**, labelled **S1** (squash or melon seeds could be used if no bean seeds are available).
Seedlings should be germinated in the dark so that they are sprouting to about 1 cm length, but not turning green.
The time required for germination should be checked at least three weeks before the examination, as germination will depend upon local variables.
Clearly state the type of seeds used on the back of the first script on the Report Form.

(iv) 5 cm^3 of coloured ink or dye, labelled **S2**. The colour of this should be intense enough so that a small drop can be very clearly seen in the capillary tube.

(v) A mm ruler.

(vi) A stopclock or stopwatch or sight of a clock with second hand.

(vii) Paper towels.

(viii) Sheet of white paper.

Question 2

(i) Slide **K3** (from Cambridge).

(ii) Eye piece graticule (from Cambridge).

Question 3

No apparatus is required.

The teacher present in the examination room at the start of the test should carry out question **1(a)** and enter their results on a spare copy of the examination paper, clearly marked 'Teacher's results' and showing the Centre number. This should be returned with the scripts.

To be supplied by Cambridge

(i) Answer books, which also contain the questions.

(ii) Slide **K3** (Question 2 and shared between two candidates).

(iii) Eyepiece graticule (Question 2 and shared between two candidates). It is recommended that the eyepiece graticules be retained by Centres. They are on the list of laboratory equipment in the 2004 syllabus, and will not be supplied by Cambridge for future sessions.

RETURN OF EXAMINATION MATERIALS TO CAMBRIDGE

Please read the following instructions carefully.

Immediately after the examination, the slides must be returned to Syndicate Buildings in the containers in which they were received, using the self-adhesive label for the parcel; they must not be included in parcels of scripts. On occasion, it may be possible for the Syndicate to offer certain slides or materials, used in the examination, for sale to Centres. In this case, an Order Form will be enclosed with the materials sent from Cambridge for the examination. Slides and containers not returned in good condition will be charged at the rate of £3 per item.

REPORT FORM

In order to minimise the disadvantages of a practical examination at which the Examiner is not present, the teacher responsible for the examination is asked to complete the Report Form on the back cover of the script of the candidate whose name appears first on the attendance register. Further comments by teachers need only be made on those scripts where difficulties are encountered.

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