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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

BIOLOGY **9700/31**

Paper 31 Advanced Practical Skills **October/November 2008**

CONFIDENTIAL INSTRUCTIONS

2 hours

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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.

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Instructions for preparing apparatus

These instructions give details of the apparatus required by each candidate for each exercise and 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.**

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 objective lens, e.g. $\times 10$ (equal to 16 mm or $\frac{2}{3}$″)
- High-power objective lens, e.g. $\times 40$ (equal to 4 mm or $\frac{1}{6}$″)
- Eyepiece graticule fitted within the eyepiece and visible in focus at the same time as the specimen – Centres may use their own eyepiece graticules.

Each candidate must have sole, uninterrupted, use of the microscope for at least 55 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

N = harmful to environment

Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination. Centres are also referred to the Handbook for Centres, and in particular Section 3.1.2 (d) (i), Security of Question Papers and Examination Materials, as well as 3.3.11, Special Instructions for Practical Examinations in the General Qualification Science Syllabuses.

If there are any difficulties with any aspect of setting up this practical examination that the Centre is not able to sort out, it is essential for Centres to contact the Product Manager, Dr Rick Nelms, as soon as possible by e-mail to international@cie.org.uk, by fax to +44 1223 553558 or by phone to +44 1223 553554.

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Confidential Instructions

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

Question 1

Each candidate will require:

(i) About 20 cm^3 of 1 mol dm^{-3} sucrose solution in a Petri dish, labelled **S1** (e.g. made by dissolving 34.23 g of sucrose in 80 cm^3 of distilled water and making up to 100 cm^3).

(ii) About 20 cm^3 distilled water in a beaker, labelled **W**.

(iii) Two pieces of fleshy scale leaf from a fresh onion, as shown in Fig. 1.1, and immediately placed in a beaker of distilled water, labelled **O**.



Fig. 1.1

(iv) An empty Petri dish and empty beaker or container.

(v) Syringe to measure 10 cm^3.

(vi) A dropper pipette.

(vii) Forceps – sharp pointed.

(viii) A scalpel or sharp knife.

(ix) Tile or cutting surface.

(x) Five microscope slides with cover slips.

(xi) Means of marking glassware e.g. permanent marker pen.

(xii) Microscope as described on page 2.

(xiii) Paper towel.

The supervisor should, out of sight of the candidates, try question 1 and record the results on the Supervisor's report which should be sent with the scripts. The invigilator must **not** be involved in testing question 1.

Question 2

No further materials required. The microscope will **not** be required for question 2.

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RETURN OF EXAMINATION MATERIALS TO CAMBRIDGE

There are no materials to return to CIE on this occasion.

REPORT FORM

The teacher responsible for the examination is asked to fill in the Report Form on pages 7 and 8 of these Confidential Instructions. For Centres where more than one script envelope is used, there must be a copy of the complete Report Form in each script parcel.

These report forms are vital in order to allow the examiners to assess all candidates as fairly as possible and should always be completed by every Centre.

A copy of the seating plan for the examination room must also be enclosed in each script parcel.

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9700/3

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

REPORT ON PRACTICAL BIOLOGY

A Level

October/November Session 2008

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

1 Was any difficulty experienced in providing the necessary materials? If so, give brief details. Please record the material used for question **1(a)** and the supervisor's results for **1(a)(i)**.

2 Give details of any difficulties experienced by particular candidates, giving names and candidate numbers. Reference should be made to:

(a) difficulties arising from faulty specimens or microscopes;

(b) accidents to apparatus or materials;

(c) assistance provided in case of colour-blindness;

(d) any other information that is likely to assist the Examiner, especially if this cannot be discovered from the scripts.

All 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.

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3 Enclose a plan of work benches with the scripts, giving details of the candidate numbers of the places occupied by the candidates for each session. 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 the 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**.

If there is insufficient space on this form, please attach further sheets including the information required.

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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

BIOLOGY **9700/32**

Paper 32 Advanced Practical Skills **October/November 2008**

CONFIDENTIAL INSTRUCTIONS

2 hours

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If you have any problems or queries regarding these Instructions, please contact CIE
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by fax: +44 1223 553558,
stating the Centre number, the nature of the query and the syllabus number quoted above.

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

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Instructions for preparing apparatus

These instructions give details of the apparatus required by each candidate for each exercise and 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**.

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 objective lens, e.g. × 10 (equal to 16 mm or $\frac{2}{3}$″)
- High-power objective lens, e.g. × 40 (equal to 4 mm or $\frac{1}{6}$″)
- Eyepiece graticule fitted within the eyepiece and visible in focus at the same time as the specimen. Centres may wish to use their own graticules.

Each candidate must have sole, uninterrupted, use of the microscope for at least 55 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.

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C = corrosive substance

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Confidential Instructions

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

Question 1

Candidates will be required to carry out an investigation into the effect of different solutions on onion cells.

Each candidate will require:

(i) Two pieces of fleshy leaf cut from a **fresh** onion (as shown in Fig 1.1) and immediately placed in a beaker of water, labelled **O**. It is advisable to discard the first layer of the onion below the skin.



Fig. 1.1

(ii) A bottle with pipette containing 10 cm^3 of a 1 mol dm^{-3} solution of potassium nitrate labelled **T1**. (This can be prepared by dissolving 10.11 g of potassium nitrate in 80 cm^3 of distilled water and making up to 100 cm^3).

[T, O, N] **(iii)** A bottle with pipette containing 10 cm^3 of a 1 mol dm^{-3} solution of lead nitrate solution labelled **T2 toxic**. (This can be prepared by dissolving 33.11 g of lead nitrate in 80 cm^3 of distilled water and making up to 100 cm^3).

(iv) About 20 cm^3 of distilled water in a beaker or other container labelled **W**.

(v) An empty Petri dish.

(vi) A dropper pipette.

(vii) Forceps – sharp, pointed.

(viii) Scalpel or sharp knife.

(ix) Tile or cutting surface.

(x) Four microscope slides with coverslips.

(xi) Glassware pen marker.

(xii) Ruler, clearly marked in mm.

(xiii) Paper towel for blotting.

(xiv) Microscope as described on Page 2.

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Question 2

No additional materials will be required. The microscope will **not** be required for Question 2.

The Supervisor should, out of sight of the candidates, try Question 1 and record the results on the Supervisor's report which should be sent with the scripts. The invigilator must not be involved in testing Question 1.

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MATERIALS TO BE SUPPLIED BY CIE

None.

RETURN OF EXAMINATION MATERIALS TO CAMBRIDGE

There are no materials to return to CIE on this occasion.

REPORT FORM

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These report forms are vital in order to allow the examiners to assess all candidates as fairly as possible and should always be completed by every Centre.

A copy of the seating plan for the examination room must also be enclosed in each script parcel.

The teacher or supervisor responsible for the subject should carry out **Question 1** during the examination, out of sight of the candidates, and report the results on the Report Form.

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

REPORT ON PRACTICAL BIOLOGY

A Level

October/November Session 2008

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

1 Was any difficulty experienced in providing the necessary materials? If so, give brief details. Please record the material used for **Question 1** and the Supervisor or Teacher results for **1(a)(ii)**.

2 Give details of any difficulties experienced by particular candidates, giving names and candidate numbers. Reference should be made to:

(a) difficulties arising from faulty specimens or microscopes;

(b) accidents to apparatus or materials;

(c) assistance provided in case of colour-blindness;

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Centre number .....

Centre name .....

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