www.XtremePapers.com

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 2007**

CONFIDENTIAL INSTRUCTIONS

2 hours

4696512505

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.

© UCLES 2007

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

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 (c) (i), Security of Question Papers and Examination Materials, as well as 3.3.11.1, Practical Examinations in Science Subjects.

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.

© UCLES 2007

Confidential Instructions

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

Question 1

Each candidate will require:

(i) 40 cm^3 distilled water, labelled **beaker 1**.

[**H**] **(ii)** 20 cm^3 of 20 vol hydrogen peroxide solution, labelled **beaker 2**. Pour out hydrogen peroxide solution just before use.

(iii) Safety glasses or other eye protection (recommended).

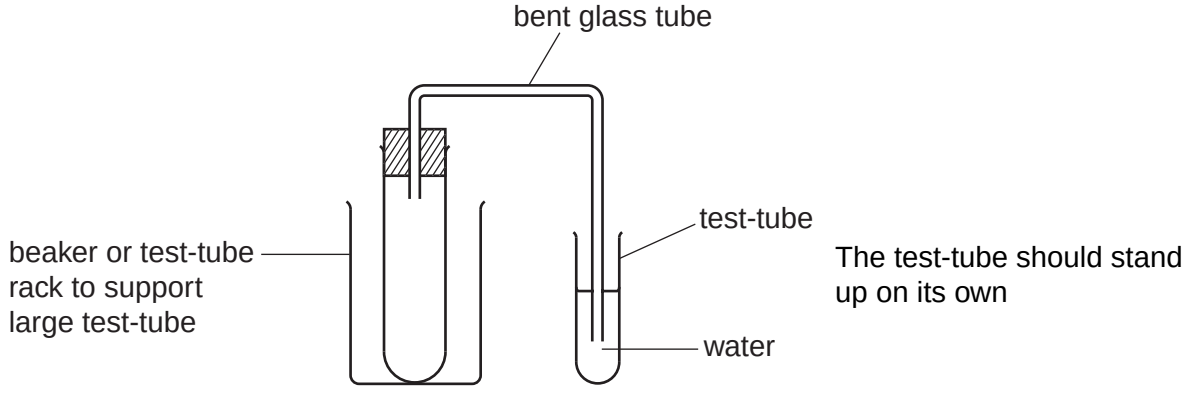
(iv) 10 cm^3 of potato extract in a small beaker, labelled **C**. This should be prepared by chopping up large fresh potatoes with their skins removed and blending them in a blender. The resulting mixture should then be filtered to produce a liquid. This can be done by placing the blended mixture into muslin or coarse cloth and squeezing out the liquid into a beaker. If fresh potatoes are not available then use sweet potato. This may be prepared the day before the examination but should be stored in a refrigerator overnight.

(v) Two small beakers or similar containers.

(vi) Access to tap water.

(vii) Three syringes to measure between 1 cm^3 and 10 cm^3 (or one syringe and a means of washing it).

(viii) The candidates should be provided with the following apparatus assembled as shown in the diagram. The small test-tube should stand up on its own.



This apparatus requires:

large and smaller test-tube,
delivery tube attached to bung that will fit the test-tube to give an airtight fit,
large beaker or similar or test-tube rack.

(ix) Stop-clock with second hand or stop-watch or sight of a clock or watch with a second hand.

(x) Access to petroleum jelly.

The Supervisor or teacher responsible for the subject should carry out **1(a)(i)** during the examination, out of sight of the candidates, and report the results on the supervisor's report on page 7 of these Confidential Instructions.

Question 2

Each candidate will require:

(i) A slide labelled **J1**, supplied by Cambridge.

(ii) A stage micrometer scale, supplied by Cambridge, attached to a microscope slide with self-adhesive transparent tape, as described in the instructions supplied with the scale. These should be retained by Centres after the examination.

(iii) 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 (from Cambridge) fitted within the eyepiece and visible in focus at the same time as the specimen. The plastic graticules supplied by Cambridge should be retained by the Centre after the examination. Centres may use their own eyepiece graticules.

MATERIALS TO BE SUPPLIED BY CIE

(i) Question papers.

(ii) Slide **J1** (question 2, shared between two candidates).

(iii) Two graticule scales and instructions for their use, one as an eyepiece graticule, the other as a stage micrometer.

RETURN OF EXAMINATION MATERIALS TO CAMBRIDGE

Immediately after the examination, microscope slides **must** be returned to CIE in the containers in which they were received, using the self-adhesive label for the parcel. They must **not** be included in the parcel of scripts. It may be possible to buy the slides, in which case an order form will be enclosed with the slides, and should be returned to CIE using the self-adhesive label for the letter. Slides and containers not returned in good condition will be charged at a rate of £4 per item to which may be added administrative costs.

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.

© UCLES 2007

BLANK PAGE

BLANK PAGE

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.

9700/3

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

REPORT ON PRACTICAL BIOLOGY

A Level

October/November Session 2007

**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.

© UCLES 2007

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**.

© UCLES 2007

www.XtremePapers.com

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

BIOLOGY **9700/32**

Paper 3 Practical Test AS **October/November 2007**

CONFIDENTIAL INSTRUCTIONS

2 hours

2875548055

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.

© UCLES 2007

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

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 (c) (i), Security of Question Papers and Examination Materials, as well as 3.3.11.1, Practical Examinations in Science Subjects.

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.

© UCLES 2007

Confidential Instructions

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

Question 1

Candidates will be expected to carry out a simple test for reducing sugar and then determine the change in length of samples of potato strips using glucose solution.

Each candidate will require:

(i) A beaker containing 40 cm^3 of a 1.0 mol dm^{-3} glucose solution, labelled **S**.

The solution should be prepared by dissolving 18 g of glucose in 100 cm^3 of distilled water.

(ii) Four strips of freshly cut, peeled potato tuber, approximately 5 mm × 5 mm and longer than 50 mm. The strips should be placed in a covered Petri dish or small plastic bag, labelled **P**.

Ideally they should be prepared immediately before the examination.

If prepared in advance, strips should be stored in a plastic bag and kept cool, to avoid any loss of water or enzymic browning.

Slices of potato can be cut with a large kitchen knife and strips produced using a scalpel. Please do not use cork borers as this may damage the tissues.

If potato is not available, a locally available alternative such as sweet potato or carrot may be substituted. Please record any substitutes on the report form on page 7 of the confidential instructions.

(iii) A beaker containing 50 cm^3 of distilled water, labelled **distilled water**.

(iv) Paper towels.

(v) Three Petri dishes or similar small containers.

(vi) A ruler measuring in mm.

(vii) A scalpel or sharp knife.

(viii) Sight of stop watch or clock with second hand.

(ix) A white tile or other similar surface on which to cut, with a minimum size of 20 cm × 20 cm.

(x) Forceps.

[H] (xi) Benedict's solution in a suitable small bottle with dispenser, labelled **Benedict's solution**.

(xii) Access to a water bath at more than 80 °C or tripod, gauze, large beaker and burner for heating.

(xiii) Test-tube rack with two test-tubes.

(xiv) Means of holding test-tubes.

(xv) Syringe or measuring cylinder to measure 20 cm^3.

(xvi) Means of washing pipette.

(xvii) Means of labelling glassware such as a permanent marker, wax pencil or small labels and pencil.

© UCLES 2007

Question 2

Each candidate will require:

(i) Slide **K1** (from Cambridge)

(ii) Transparent ruler to measure to an accuracy of 1 mm (this may be the same ruler as in question 1)

(iii) 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 (from Cambridge) fitted within the eyepiece and visible in focus at the same time as the specimen. The plastic graticules supplied by Cambridge should be retained by the Centre after the examination. Centres may use their own eyepiece graticules.

MATERIALS TO BE SUPPLIED BY CIE

(i) Question papers.

(ii) Slide **K1** (question 2, shared between two candidates).

(iii) One graticule scale and instructions for its use as an eyepiece graticule.

RETURN OF EXAMINATION MATERIALS TO CAMBRIDGE

Immediately after the examination, microscope slides **must** be returned to CIE in the containers in which they were received, using the self-adhesive label for the parcel. They must **not** be included in the parcel of scripts. It may be possible to buy the slides, in which case an order form will be enclosed with the slides, and should be returned to CIE using the self-adhesive label for the letter. Slides and containers not returned in good condition will be charged at a rate of £4 per item to which may be added administrative costs.

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.

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

© UCLES 2007

BLANK PAGE

BLANK PAGE

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.

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

REPORT ON PRACTICAL BIOLOGY A Level October/November Session 2007

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 **1(a)** and the Supervisor or Teacher results for **1(a)** and **1(b)(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.

© UCLES 2007

[Turn over

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**.

© UCLES 2007