



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY

0610/51

Paper 5 Practical Test

May/June 2017

CONFIDENTIAL INSTRUCTIONS

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 queries regarding these Confidential Instructions, please contact Cambridge stating the Centre number, the nature of the query and the syllabus number quoted above.

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phone +44 1223 553554
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This document consists of **6** printed pages and **2** blank pages.

READ THESE INSTRUCTIONS FIRST

These Confidential 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. **Testing must be done out of sight of all candidates.**

No access to the question paper is permitted in advance of the examination.

Centres are reminded that candidates are expected to follow the instructions on the question paper and record all their results. They will not be penalised if these results are not what they expect.

The Supervisor should make sure the Supervisor's Report is fully completed and a copy is enclosed with each packet of scripts.

It is assumed that the ordinary apparatus of a science laboratory will be available, including a supply of purified water (distilled or deionised).

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.**

All specimens should carry only the code letters and numbers as indicated and their identity should not be revealed to the candidates.

Supervisors should ensure that all specimens have the correct identity attached to the specimen and that these are **not** removed during 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.

Supervisors are advised to remind candidates that **all** substances in the examination should be treated with caution. Pipette fillers and eye protection 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 where relevant:

C corrosive	MH moderate hazard
HH health hazard	T acutely toxic
F flammable	O oxidising
N hazardous to the aquatic environment	

Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination.

If there are any difficulties with any aspect of setting up this practical examination that the Centre is not able to resolve, it is essential for Centres to contact Cambridge as soon as possible by **email** to info@cie.org.uk, by **fax** to +44 1223 553558 or by **phone** to +44 1223 553554.

Question 1

Each candidate should be provided with:

- (i) seven empty test-tubes (125 mm × 15 mm)
- (ii) means to mark glassware, for example a marker pen
- (iii) 20 cm³ of 1% albumin solution in a beaker labelled **1% protein solution**
- (iv) 50 cm³ distilled water in beaker labelled **distilled water**
- (v) 25 cm³ biuret reagent normally used for food testing in a beaker labelled **biuret reagent**
- (vi) 5 cm³ 0.15% albumin solution in a test-tube labelled **A**
- (vii) 5 cm³ 0.60% albumin solution in a test-tube labelled **B**
- (viii) test-tube rack or other means of support for nine test-tubes
- (ix) two 1 cm³ syringes (without needles)
- (x) three 5 cm³ syringes (without needles)
- (xi) tap water in a beaker labelled **water for washing**
- (xii) empty beaker labelled **waste**
- (xiii) white tile or white card
- (xiv) timer, or sight of a clock with a second hand
- (xv) paper towels
- (xvi) eye protection
- (xvii) disposable gloves

Question 2

- (i) ruler with a mm scale.

Preparation of solutions

HH powdered albumin may be an irritant to the eye. Solutions with a concentration of 1% or less are not hazardous.

1% albumin solution

Weigh 10 g powdered albumin and add to 250 cm³ of warm distilled water (at a maximum temperature of 25 °C). Stir slowly until the albumin dissolves. It can take several minutes for the albumin to dissolve completely. Make up to 1 dm³ with distilled water. The solution can be made 48 hours before the examination and stored in a refrigerator.

0.60% albumin solution

Weigh 1.5g of solid albumin and add it to 100 cm³ of warm distilled water (at a maximum temperature of 25 °C). Stir slowly until the albumin dissolves and then make up to 250 cm³ with distilled water. The solution can be made 48 hours before the examination and stored in a refrigerator. This is sufficient for 50 candidates.

Alternatively, dilute 1% albumin solution in a ratio of 3 parts albumin solution to 2 parts distilled water.

0.15% albumin solution

Put 37.5 cm³ of 1% albumin solution into a clean beaker and make up to 250 cm³ with distilled water. The solution can be made 48 hours before the examination and stored in a refrigerator. This is sufficient for 50 candidates.

Biuret reagent

This can be purchased from a commercial supplier. The reagent should be fresh and stored in a cool dark place.

The Supervisor (**not** the Invigilator) should carry out the practical aspects of **Question 1** and record their results in the space provided in the Supervisor's Report. This must be done during the examination, using the same apparatus and reagents as the candidates but **out of sight** of the candidates.

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

SUPERVISOR'S REPORT

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.

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- 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)** assistance provided in the case of colour blindness;

.....

- (d)** 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 Cambridge on the normal Special Consideration Form as detailed in the Handbook for Centres.

- 3** During the examination, the Supervisor should, **out of sight of the candidates**, carry out the practical aspects of **Question 1** using the same apparatus and reagents as the candidates. Results should be recorded in the space on page 8 (**not** on a spare question paper). Attach extra sheets if necessary.

The Invigilator should **not** carry out **Question 1**.

Question 1 results:

- 4 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.

Declaration (to be signed by the Supervisor)

The preparation of this practical 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 to be dispatched in more than one packet, it is essential that a copy of the Supervisor's Report and the appropriate seating plan(s) are inside **each packet**.