Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/52**

Paper 5 Practical Test **October/November 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.

email info@cie.org.uk
phone +44 1223 553554
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This document consists of **7** printed pages and **1** blank page.

CAMBRIDGE International Examinations

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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

HH health hazard

F flammable

N hazardous to the aquatic environment

MH moderate hazard

T acutely toxic

O oxidising

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) six test-tubes

(ii) 25 cm^3 of 1% starch solution in a container labelled **starch solution**

HH **(iii)** 5 cm^3 of 1% bacterial amylase in a container labelled **1% amylase**

HH **(iv)** 5 cm^3 of 2% bacterial amylase in a container labelled **2% amylase**

HH **(v)** 5 cm^3 of 3% bacterial amylase in a container labelled **3% amylase**

(vi) test-tube rack or other means of supporting six test-tubes

(vii) large beaker able to hold six test-tubes and suitable to be used as a water-bath

(viii) tripod, gauze and Bunsen burner or other means of maintaining a water-bath at 60 °C

(ix) thermometer –10 °C to +100 °C

(x) a supply of water at 60 °C is needed throughout the practical

Candidates have been instructed to raise their hand when they are ready for hot water.

(xi) one 5 cm^3 syringe

(xii) three 1 cm^3 syringes

(xiii) dry white tile

(xiv) 10 cm^3 of iodine solution in a bottle with a dropper, labelled **iodine solution**

(xv) means of writing on glassware, e.g. waterproof marker pen

(xvi) glass rod

(xvii) 250 cm^3 of distilled water in a container labelled **water for washing**

(xviii) container for waste water labelled **waste water**

(xix) paper towels

(xx) view of a clock or timer that allows the candidate to time minutes and seconds

(xxi) gloves and suitable eye protection

Solution preparation:

1% starch solution

Heat 10 g of soluble starch in 200 cm^3 of distilled water until the liquid clears. Allow the solution to cool and add distilled water to make up to 1 dm^3.

The solution should be freshly made.

amylase solutions

These concentrations are based on using concentrated bacterial amylase obtained from a biological supplier.

HH 1% Put 2.5 cm^3 of bacterial amylase into a beaker. Add distilled water to make up to a final volume of 250 cm^3.

HH 2% Put 5.0 cm^3 of bacterial amylase into a beaker. Add distilled water to make up to a final volume of 250 cm^3.

HH 3% Put 7.5 cm^3 of bacterial amylase into a beaker. Add distilled water to make up to a final volume of 250 cm^3.

These solutions should be freshly made.

iodine solution

A commercially prepared iodine solution suitable for standard food tests can be used.

Alternatively it can be made as follows:

Wear eye protection, disposable gloves and work in a well-ventilated room.

Put 8 g of potassium iodide (KI) into a beaker and moisten the potassium iodide with a few drops of distilled water.

Add 2.54 g of iodine (I_2) to the moistened potassium iodide. Add a small volume of water and stir. When no more iodine appears to dissolve, add some more water and stir. Keep repeating this procedure until all the iodine has dissolved. Do not exceed a total volume of 1 dm^3.

If necessary add more distilled water to make up to the total final volume of 1 dm^3.

Before the examination the Supervisor should carry out part of the investigation to test the amylase activity. 5 cm^3 of starch solution and 1 cm^3 of 1% amylase should be heated separately in a water-bath at 60 °C. After three minutes the solutions should be mixed together and small samples of the contents tested at one minute intervals using iodine solution. If the mixture is still blue-black after five minutes, reduce the concentration of the starch solution and re-test until the solution remains brown at five minutes.

Question 2

No laboratory equipment required.

(i) ruler marked in mm

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

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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**.