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Cambridge Assessment International Education

Cambridge IGCSE™

COMBINED SCIENCE **0653/51**

Paper 5 Practical Test **October/November 2023**

CONFIDENTIAL INSTRUCTIONS

2622997512

This document gives details of how to prepare for and administer the practical exam.

The information in this document and the identity of any materials supplied by Cambridge International are confidential and must NOT reach candidates either directly or indirectly.

The supervisor must complete the report at the end of this document and return it with the scripts.

INSTRUCTIONS

- If you have any queries regarding these confidential instructions, contact Cambridge International stating the centre number, the syllabus and component number and the nature of the query.
  email info@cambridgeinternational.org
  phone +44 1223 553554

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General information about practical exams

Centres must follow the guidance on science practical exams given in the *Cambridge Handbook*.

Safety

Supervisors must follow national and local regulations relating to safety and first aid.

Only those procedures described in the question paper should be attempted.

Supervisors must inform candidates that materials and apparatus used in the exam should be treated with caution. Suitable eye protection should be used where necessary.

The following hazard codes are used in these confidential instructions, where relevant:

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

Hazard data sheets relating to substances used in this exam should be available from your chemical supplier.

Before the exam

- The packets containing the question papers must **not** be opened before the exam.
- It is assumed that standard school laboratory facilities, as indicated in the *Guide to Planning Practical Science*, will be available.
- Spare materials and apparatus for the tasks set must be available for candidates, if required.

During the exam

- It must be made clear to candidates at the start of the exam that they may request spare materials and apparatus for the tasks set.
- Where specified, the supervisor **must** perform the experiments and record the results as instructed. This must be done **out of sight** of the candidates, using the same materials and apparatus as the candidates.
- Any assistance provided to candidates must be recorded in the supervisor's report.
- If any materials or apparatus need to be replaced, for example, in the event of breakage or loss, this must be recorded in the supervisor's report.

After the exam

- The supervisor must complete a report for each practical session held and each laboratory used.
- Each packet of scripts returned to Cambridge International must contain the following items:
  - the scripts of the candidates specified on the bar code label provided
  - the supervisor's results relevant to these candidates
  - the supervisor's reports relevant to these candidates
  - seating plans for each practical session, referring to each candidate by candidate number
  - the attendance register.

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Specific information for this practical exam

During the exam, the supervisor (**not** the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

Apparatus and chemicals for Question 1

Each candidate will require the following materials and apparatus.

- 50 cm^3 apple puree, in a beaker labelled **apple puree** (see note 1)
- 20 cm^3 1% pectinase enzyme, in a beaker labelled **enzyme solution**
- 20 cm^3 distilled water, in a beaker labelled **distilled water**
- empty 250 cm^3 beaker labelled **water-bath** and a supply of hot and cold water (see note 2)
- 2 × boiling tubes (approximately 150 mm × 25 mm) and a means of supporting them
- means to label the boiling tubes, e.g. wax pencils or water-resistant markers
- 2 × 10 cm^3 syringes
- 2 × glass stirring rods
- spatula
- stop-clock
- paper towels
- thermometer, –10 °C to 110 °C with 1 °C graduations, suitable for stirring
- 2 × measuring cylinders (2 × 25 cm^3 or 2 × 50 cm^3)
- 2 × filter funnels to fit measuring cylinders
- 4 × filter papers
- section through an apple, provided on a white tile and covered with a damp paper towel (see note 3)

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Notes

1. *apple puree*
   To prepare the apple puree, finely chop 100 g of apple and mix with 20 cm^3 distilled water. Liquidise until the puree has the consistency of a smooth paste.

2. *water-bath*
   Candidates will need access to sufficient hot and cold water to make a water-bath at a temperature of approximately 40 °C.

3. *apple section*
   This should be presented as a half-apple or slice cut through the centre as shown.



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Apparatus and chemicals for Question 2

Each candidate will require the following materials and apparatus. Labels do **not** need to include concentrations.

- 200 cm^3 of 1.5 mol dm^{-3} hydrochloric acid labelled **dilute hydrochloric acid**

[F]

- 80 mm of magnesium ribbon labelled **magnesium**
- 1 × 100 cm^3 glass beaker (see note 1)
- 1 × glass stirring rod
- 1 × pair of scissors
- 1 × 25 cm^3 measuring cylinder
- 1 × ruler graduated in mm
- 1 × stop-watch
- 1 × dropping pipette
- 6 × paper towels

Note

1. You can substitute a 250 cm^3 glass beaker for the 100 cm^3 glass beaker. Candidates will need to empty the beaker of 25 cm^3 dilute hydrochloric acid, rinse and dry the beaker five times during the experiment.

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Apparatus and chemicals for Question 3

Each candidate will require the following materials and apparatus.

- plane mirror, approximately 75 mm × 25 mm, with a holder (see note 1)
- 4 × optics pins (see note 2)
- pinboard, e.g. a cork mat A4 size or larger (see note 3)
- protractor (candidates may use their own).
- 30 cm or 15 cm ruler, graduated in mm (candidates may use their own).

Notes

1. The mirror should be capable of standing vertically with its long edge on the question paper.
2. Spare optics pins should be available.
3. Instruct the candidates to place the pinboard under a **single** page of the question paper only. Candidates should **not** remove the page from the question paper.

Apparatus and chemicals for Question 4

No apparatus or chemicals are required for this question.

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Supervisor's report

Syllabus and component number | | | | | / | | |

Centre number | | | | | |

Centre name .....

Time of the practical session .....

Laboratory name/number .....

Give details of any difficulties experienced by the centre or by candidates (include the relevant candidate names and candidate numbers).

You must include:

- any difficulties experienced by the centre in the preparation of materials
- any difficulties experienced by candidates, e.g. due to faulty materials or apparatus
- any specific assistance given to candidates.

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Space for supervisor to record results, if relevant, e.g. temperature of the laboratory; results for Question 1.

Declaration

1 Each packet that I am returning to Cambridge International contains all of the following items:
- the scripts of the candidates specified on the bar code label provided
- the supervisor's results relevant to these candidates
- the supervisor's reports relevant to these candidates
- seating plans for each practical session, referring to each candidate by candidate number
- the attendance register.

2 Where the practical exam has taken place in more than one practical session, I have clearly labelled the supervisor's results, supervisor's reports and seating plans with the time and laboratory name/number for each practical session.

3 I have included details of difficulties relating to each practical session experienced by the centre or by candidates.

4 I have reported any other adverse circumstances affecting candidates, e.g. illness, bereavement or temporary injury, directly to Cambridge International on a *special consideration form*.

Signed ..... (supervisor)

Name (in block capitals) .....

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