



Cambridge IGCSE™

PHYSICAL SCIENCE

0652/51

Paper 5 Practical Test

October/November 2023

CONFIDENTIAL INSTRUCTIONS

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

This document has **8** pages. Any blank pages are indicated.

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.

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:

- 60 cm³ 0.4 mol dm⁻³ sodium carbonate solution labelled **sodium carbonate (aq)**
- 50 cm³ 0.4 mol dm⁻³ barium nitrate labelled **barium nitrate (aq)**
- 6 test-tubes, approximately 125 mm × 16 mm, and a means to support them (see Note 1)
- means of labelling glassware
- two 10 cm³ measuring cylinders
- 15 or 30 cm ruler with 1 mm graduations
- access to distilled water
- 2 teat pipettes
- glass rod for stirring
- paper towels.

Notes

1. Each set of six test-tubes should be identical.
2. There should be a clock with a minute hand visible to all candidates. This clock could be on the wall of the examination room.

Action at changeover

The supervisor should ensure that the supplies of sodium carbonate and barium nitrate are replaced.

The 6 test-tubes should be emptied of any solutions, rinsed with distilled water and labelling removed before replacing with the rest of the apparatus. Alternatively, a fresh set of 6 test-tubes can be provided.

Apparatus and chemicals for Question 2

Each candidate will require:

- 10 cm³ 0.4 mol dm⁻³ sodium carbonate solution labelled **sodium carbonate (aq)** (see Note 1)
- 10 cm³ 0.4 mol dm⁻³ barium nitrate labelled **barium nitrate (aq)** (see Note 1)

[C]

- 15 cm³ 1.0 mol dm⁻³ nitric acid labelled **nitric acid**
- limewater for testing for carbon dioxide
- apparatus usually used by the centre for testing for carbon dioxide
- 1 test-tube, approximately 125 mm × 16 mm and a means to support it
- 2 teat pipettes
- 2 wooden splints
- 2 red litmus papers
- Bunsen burner and a means to light it
- access to distilled water
- paper towels.

Notes

1. These solutions have been provided in Question 1.

Apparatus for Question 3

Each candidate will require:

- rectangular transparent glass or Perspex block, 10 cm × 6 cm × 1.5 cm (or a similar size)
- 4 optics pins (see Note 1)
- pinboard (e.g. a cork mat) A4 size or larger (see Note 2)
- protractor
- 30 cm ruler with 1 mm graduations.

Notes

1. Spare pins should be available.
2. If a pinboard made of cork is not available, then a double layer of thick card, such as that found making up a sturdy box, can be used.

An optics pin inserted into the board must be able to stand vertically without any support other than the board.

Apparatus for Question 4

No apparatus is required for this question.

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Supervisor's report

Syllabus and component number

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Centre number

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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.

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)