



Cambridge IGCSE™

COMBINED SCIENCE

0653/52

Paper 5 Practical Test

February/March 2025

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 4 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

Question 1

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	leaves (see note 1.1 and note 1.2)	5
	30 cm ruler, with mm scale	1

Notes

- 1.1** The leaves should be from a non-toxic dicotyledonous (broad-leaved) plant. The leaves should be freshly picked and come from the same species of plant.
- 1.2** The leaves should be of a size suitable to be measured using a 30 cm ruler, i.e. smaller than 30 cm. Each candidate should be given a **range** of sizes.

Action at changeover

None.

During the exam, the supervisor (**not** the invigilator) must do the experiments in Questions 1, 2 and 4 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

Question 2

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

hazard	materials and apparatus	quantity per candidate
[C][N]	0.25 mol dm ⁻³ copper(II) sulfate, labelled H (see note 2.1)	5 cm ³
	0.25 mol dm ⁻³ sodium carbonate, labelled J (see note 2.1)	5 cm ³
[MH]	0.25 mol dm ⁻³ dilute nitric acid, labelled K (see note 2.1)	5 cm ³
low hazard	0.25 mol dm ⁻³ barium nitrate, labelled L (see note 2.1)	5 cm ³
[F]	universal indicator solution, labelled universal indicator (see note 2.2)	2 cm ³
	pH colour chart appropriate for use with the universal indicator solution	1
	test-tubes and a means to support them (see note 2.3)	6
	dropping pipettes (see note 2.1)	5
	access to paper towels	

Notes

- 2.1** The solutions can be supplied in communal samples but no more than four candidates to share each sample. Arrangements must be made to ensure that the samples do not become contaminated. Candidates need to have separate dropping pipettes for each solution.
- 2.2** Universal indicator should be provided in a container with a dropper or pipette. The solution can be supplied in communal samples but no more than four candidates to share each sample. Arrangements must be made to ensure that the samples do not become contaminated.
- 2.3** Test-tubes should be approximately 125 mm × 16 mm. They must be supported in a test-tube rack or appropriately sized beaker.

Action at changeover

Remove the dirty apparatus and replace with clean apparatus.

Replace all chemicals to avoid contamination.

During the exam, the supervisor (**not** the invigilator) must do the experiments in Questions 1, 2 and 4 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

Question 3

No materials or apparatus are required for this question.

Question 4

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	30 cm ruler, with mm scale	1
	block of wood (see note 4.1)	1
	access to a balance, reading to at least 0.1 g	

Notes

4.1 The block of wood should have approximate dimensions $1.5\text{ cm} \times 3\text{ cm} \times 10\text{ cm}$ with a mass in the range of approximately 15 g to 30 g.

The smallest face should be labelled **X**. The other two faces should be labelled **Y** and **Z** as shown in Fig. 4.1.

The three faces **X**, **Y** and **Z** have different areas. Face **X** has the smallest area.

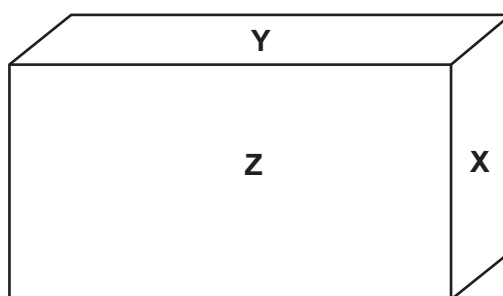


Fig. 4.1

Action at changeover

The apparatus should be laid out on the bench. If the apparatus is to be used by another candidate, then it should be restored to its original state.

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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)