CAMBRIDGE
International Education

Cambridge IGCSE™

CO-ORDINATED SCIENCES **0654/51**

Paper 5 Practical Test **May/June 2026**

CONFIDENTIAL INSTRUCTIONS

2803487935

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 **12** pages. Any blank pages are indicated.

DC (SL/TC) 358009/3
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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, 3, 4 and 5 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
	insect pollinated flower, radially symmetrical with between 4 and 6 petals of approximately 4 to 15 cm, large enough to see the petals, carpel and stamen easily (eg. a lily or tulip)	1
	white tile	1
	30 cm ruler graduated in mm	1

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Question 2

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	apple puree in a small beaker labelled **apple puree**, supplied at about 40 °C (see note 2.1)	approximately 50 g
[MH] [HH][C]	pectinase enzyme in a test-tube labelled **enzyme**, supplied at about 40 °C (see note 2.2)	2 cm^3
	25 cm^3 measuring cylinder	1
	filter funnel (see note 2.3)	1
	filter paper to fit filter funnel	1
	glass stirring rod	1
	stop-watch	1
	paper towels	1

Notes

2.1 Apple puree can be bought in tins or prepared from mashed apples and water. It should be easy for candidates to pour. Additional water may be added to achieve this.

2.2 Undiluted pectinase ready supplied in liquid form can be used, or a 10% by volume solution made up from crystals.

2.3 The filter funnel should be the largest that can be placed in the measuring cylinder and remain stable.

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Question 3

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

hazard	materials and apparatus	quantity per candidate
[C][MH][N]	1.0 mol dm^{-3} copper(II) sulfate labelled **aqueous copper(II) sulfate**	40 cm^3
[F][N]	zinc powder supplied in a sealed container labelled **zinc powder** (see note 3.1)	1.0 g
	white polystyrene cup (see note 3.2)	1
	beaker for polystyrene cup to sit in for stability	1
	50 or 100 cm^3 measuring cylinder	1
	stop-watch	1
	stirring thermometer, –10 °C to +110 °C, with 1 °C graduations	1
	paper towels	2

Notes

3.1 The zinc should be from a new supply. The 1.0 g of zinc needs to be supplied to each candidate in a container from which the zinc can be poured.

3.2 If polystyrene cups are not available then 2 white paper cups one sitting inside the other are suitable. These need to either be labelled as **polystyrene** or candidates need to be told of the change.

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Question 4

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

hazard	materials and apparatus	quantity per candidate
[MH]	an aqueous mix of 0.5 mol dm^{-3} iron(II) sulfate and 0.5 mol dm^{-3} sodium bromide provided in a sealed container and labelled **K** (see notes 4.1 and 4.2)	10 cm^3
[C]	access to 1.0 mol dm^{-3} sodium hydroxide labelled **sodium hydroxide** (see note 4.3)	(10 cm^3)
[C]	access to 1.0 mol dm^{-3} nitric acid labelled **nitric acid** (see note 4.3)	(5 cm^3)
	access to 0.05 mol dm^{-3} silver nitrate in a bottle with a dropper or supplied with a dropping pipette, labelled **silver nitrate** (see note 4.3)	a few drops
	access to 0.1 mol dm^{-3} barium nitrate in a bottle with a dropper or supplied with a dropping pipette, labelled **barium nitrate** (see notes 4.3 and 4.4)	a few drops
	test-tubes	3
	test-tube rack	1
	dropping pipette	3
	paper towels	2

Notes

4.1 The aqueous iron(II) sulfate needs to be made with equal volumes of water and 1.0 mol dm^{-3} sulfuric acid to stabilise the iron(II) ion.

The solution should be made using fresh iron(II) sulfate, no more than 12 hours before the examination and must be stored in an airtight container.

4.2 The solution needs to give a positive test for iron(II) ions, sulfate ions and bromide ions. Concentrations may be changed to achieve this.

4.3 This reagent may be shared by not more than 4 candidates.

4.4 This may be aqueous barium chloride labelled as **barium nitrate**.

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Question 5

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	clamp, boss and stand (see note 5.1)	2
	30 cm ruler graduated in mm	1
	strands of dry, uncooked spaghetti greater than 20 cm in length	10
	glass marbles in a container (see note 5.2)	50
	small plastic bag with attached small, lightweight hook (see note 5.3)	1
	access to a balance to measure up to 500 g, with a precision of at least 0.1 g (see note 5.4)	
	plastic bowl to catch marbles	1
	force meter with a maximum reading between 1.0 and 3.0 N, graduated in 0.1 N intervals capable of measuring the weight of the bag when it contains 10 marbles	1

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Notes

5.1 Wooden blocks/bricks can be used as an alternative to the clamps, bosses and stands. The height must be high enough so that the bag can be suspended from the spaghetti without touching the bench.
If this alternative is used the candidates need to be informed of the change and how Figure 5.1(a) relates to Figure 5.1(b).

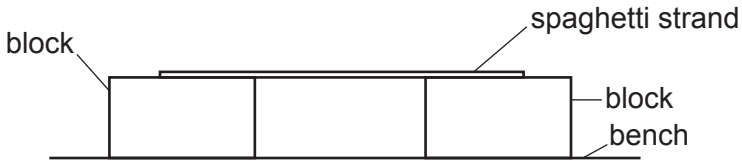


Figure 5.1(a)

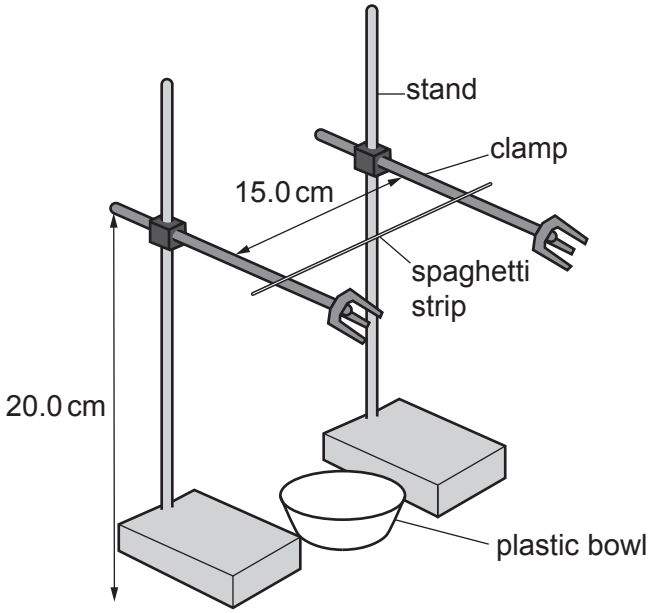


Figure 5.1(b)

5.2 If the centre has difficulty obtaining enough marbles, then low value, small sized coins are suitable.

5.3 The bag must be strong enough and large enough to contain 50 marbles without tearing when suspended from the spaghetti. A paperclip is suitable to use as a hook.

5.4 Each candidate will use the balance a minimum of 3 times.

Action at changeover

Remove the broken spaghetti and replace with new spaghetti.

Remove marbles from bag and return marbles to the container.

Disassemble the apparatus.

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Question 6

No materials or apparatus 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, where relevant.

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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