Cambridge Assessment International Education

Cambridge IGCSE™

CO-ORDINATED SCIENCES **0654/52**

Paper 5 Practical Test **May/June 2025**

CONFIDENTIAL INSTRUCTIONS

8801296882

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.

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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
	an insect pollinated flower, radially symmetrical with between 4 and 6 petals of approximately 4 to 10 cm, large enough to see the petals, carpel and stamen easily (e.g. a lily or tulip)	1
	white tile	1
	forceps	1
	30 cm ruler graduated in mm	1

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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
	approximately 1 cm depth 5% glucose solution in 3 test-tubes, labelled **A1**, **A2** and **A3** (see note 2.1)	1 set
	approximately 1 cm depth 1% albumen solution in 3 test-tubes, labelled **B1**, **B2**, and **B3** (see note 2.2)	1 set
[MH]	Benedict's solution with dropper, labelled **Benedict's solution**	at least 5 cm^3
[C]	biuret solution with dropper, labelled **biuret solution**	at least 5 cm^3
[MH][N]	iodine solution with dropper, labelled **iodine solution**	at least 1 cm^3
	access to a hot water-bath at a temperature of about 80 °C (see note 2.3)	
	test-tube rack	1
	test-tube holder	1
	sight of a clock with a second hand	
	paper towels	2

Notes

2.1 The labels are **A1** for one test-tube, **A2** for one test-tube and **A3** for one test-tube.

5% glucose solution can be made by dissolving 5 g powdered glucose in 100 cm^3 distilled/deionised water.

2.2 The labels are **B1** for one test-tube, **B2** for one test-tube and **B3** for one test-tube.

1% albumen solution can be made by dissolving 1 g powdered albumen in 100 cm^3 distilled/deionised water.

2.3 Water-baths may be individual or communal.

Candidates should be warned of the dangers of burns or scalds when using very hot water.

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Question 3

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	potassium sulfate, labelled **potassium sulfate** (see note 3.1)	15 g
	distilled or deionised water	120 cm^3
	spatula	1
	20 cm^3 or 25 cm^3 measuring cylinder	1
	glass rod	1
	250 cm^3 conical flask	1
	paper towels	2

Notes

3.1 Extra potassium sulfate should be available if requested by candidates.

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
[C][MH][N]	anhydrous copper(II) sulfate in a sealed container, labelled **anhydrous copper sulfate** (see note 4.1)	3 spatula loads
	0.5 mol dm^{-3} aqueous ammonia, labelled **L** supplied with a dropper	20 cm^3
	boiling tubes and a means to support them (see note 4.2)	2
	stirring thermometer (–10 °C to 110 °C with 1 °C graduations)	1
	spatula	1
	paper towels	2
	10 cm^3, 20 cm^3 or 25 cm^3 measuring cylinder	1
	distilled or deionised water	20 cm^3

Notes

4.1 Anhydrous copper(II) sulfate can be purchased or it can be made by heating hydrated copper(II) sulfate crystals until all of the water of crystallisation has evaporated.

4.2 The boiling tubes should be approximately 150 mm × 25 mm and be supported in a test-tube rack or appropriately sized beaker or with a clamp stand, boss and clamp.

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Question 5

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	small shatterproof tray or bowl of dry, coarse sand (see note 5.1)	1
	metre ruler	1
	stand, boss and clamp	1
	small metal ball bearing of diameter 1–2 cm approximately	1
	30 cm ruler	1
	small piece of wood used to level the sand in the bowl/tray	1
	access to dustpan and brush	

Notes

5.1 Builder's sand is suitable. The bowl/tray should be a minimum of 15 cm wide. The sand should be to a depth of 4 cm.

5.2 The equipment should be set up as in Fig. 5.1. The metre ruler should have the 0.0 cm end resting on the surface of the sand.

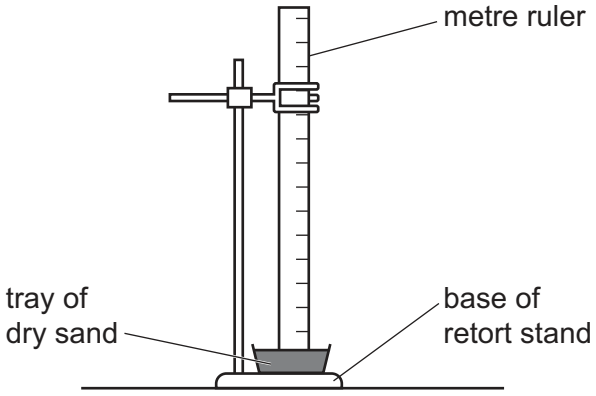

Fig. 5.1

Action at changeover

Reset the equipment and clear up any scattered sand.

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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