Cambridge Assessment International Education

Cambridge IGCSE™

CO-ORDINATED SCIENCES **0654/52**

Paper 5 Practical Test **October/November 2025**

CONFIDENTIAL INSTRUCTIONS

5679325968

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.

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, 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. Labels do **not** need to include concentrations.

hazard	materials and apparatus	quantity per candidate
	cube of peeled, uncooked white potato of approximately 1 × 1 × 1 cm (see note 1.1)	1
	milk in small beaker labelled **milk** (see note 1.2)	10 cm^3
[MH]	biuret solution, supplied with a dropper, labelled **biuret solution**	10 cm^3
	iodine solution, supplied with a dropper, labelled **iodine solution**	2 cm^3
	test-tubes	4
	test-tube rack	1
	cutting blade or sharp knife	1
	white tile	1
	paper towels	2

Notes

1.1 The cube of potato should be presented on the white tile and covered with a damp paper towel.

1.2 The milk supplied should give a positive result with biuret solution. If the milk does not give a positive test, protein powder or egg white may be added to the milk to achieve this.

Question 2

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	leaf with different lobes and veins clearly visible, for example oak, maple, acer	1
	access to pencil and eraser	1

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
	2.0 mol dm^{-3} dilute hydrochloric acid labelled **dilute hydrochloric acid**	150 cm^3
[MH][N]	16 spatulas of copper carbonate labelled **copper carbonate** (see note 3.1)	16 spatula loads
	distilled or deionised water	
	conical flasks (see note 3.2 and note 3.3)	5
	25 cm^3 or 50 cm^3 measuring cylinders	2
	10 cm^3 measuring cylinder	2
	stop-watch	1
	spatula	1
	paper towels	2

Notes

3.1 Basic copper carbonate may be used.

3.2 Candidates may be given fewer conical flasks, the minimum being 2.

3.3 If fewer than 5 conical flasks are given to each candidate, candidates should be supplied with a waste container. Candidates will need to be told they can place the contents of the flasks into the waste container before they wash the flasks out for reuse.

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
	0.5 mol dm^{-3} aqueous potassium sulfate labelled **X**	15 cm^3
	0.5 mol dm^{-3} aqueous potassium carbonate labelled **Y**	15 cm^3
	access to 0.1 mol dm^{-3} barium nitrate solution in a bottle with a dropper or supplied with a dropping pipette, labelled **aqueous barium nitrate** (see notes 4.3 and 4.4)	
	test-tubes and a means to support them (see notes 4.1 and 4.2)	4
	Bunsen burner and a means to light it	1
	heat proof mat	1
	wooden splints	2
	access to distilled or deionised water	
	paper towels	2

Notes

4.1 Candidates can be given fewer test-tubes, the minimum being 2, but they will need to be told to rinse them out.

4.2 Test-tubes should be approximately 125 mm × 16 mm and be supported in a test-tube rack or appropriately sized beaker.

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

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

[Turn over

Question 5

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	a converging lens with focal length f = 15 cm, with holder	1
	a metre ruler graduated in mm, fixed to the bench with tape	1
	an illuminated object with a hole in the shape of an equilateral triangle of side approximately 2 cm (see notes 5.1, 5.2 and 5.3)	1
	a white screen (see note 5.4)	1

Assemble the apparatus for the candidate as shown in Fig. 5.1. See note 5.3.

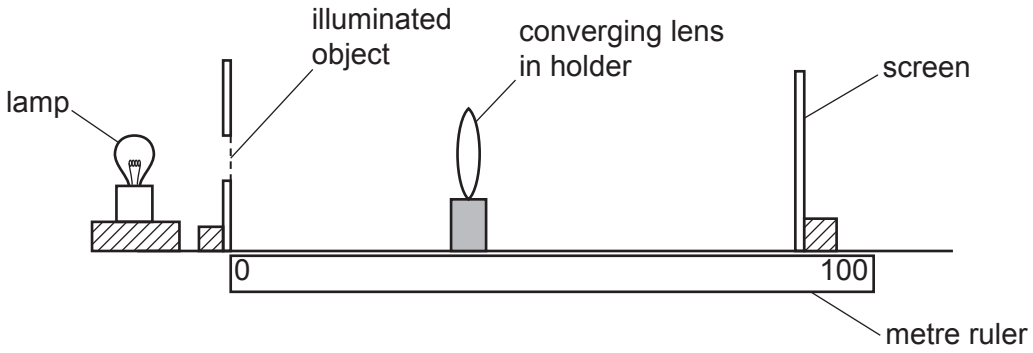

Fig. 5.1

Notes

5.1 The object can be made by cutting a triangular hole in a piece of white card, and covering the hole with translucent paper.
The orientation of the triangle must be as shown in Fig. 5.2.

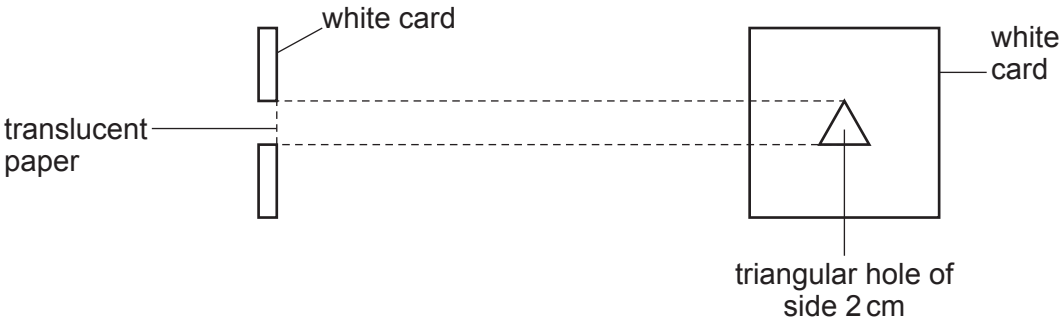

Fig. 5.2

5.2 The illumination can be provided by a 12 V, 24 W lamp, or similar.

5.3 The lamp filament, the centre of the hole in the object card and the centre of the lens should be arranged to be the same height above the bench. The illuminated object should be aligned with the 0 cm end of the metre ruler.

5.4 The screen can be made from a sheet of white card (10 cm × 10 cm approx.). Some means of supporting the screen vertically must be supplied e.g. fixing the white card to a small block of wood. See Fig. 5.3.

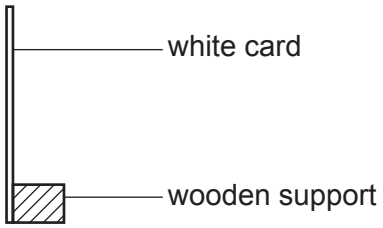

Fig. 5.3

Action at changeover

Switch off the lamp and return the apparatus to the starting position.

Question 6

No apparatus or materials 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.

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) .....