



# Cambridge IGCSE™

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## PHYSICS

0625/51

Paper 5 Practical Test

October/November 2024

### 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.**

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### 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](mailto:info@cambridgeinternational.org)  
phone      +44 1223 553554

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This document has **8** pages.

## 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:

<b>C</b>	corrosive	<b>MH</b>	moderate hazard
<b>HH</b>	health hazard	<b>T</b>	acutely toxic
<b>F</b>	flammable	<b>O</b>	oxidising
<b>N</b>	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'.

### Question 1

#### Items to be supplied by the centre (per set of apparatus unless otherwise specified)

- (i) Clamp, boss and stand.
- (ii) Pendulum bob attached to approximately 110 cm of inextensible string or thread.
- (iii) Metre ruler, graduated in mm.
- (iv) Stop-watch or stop-clock with a minimum precision of 0.1 s.
- (v) Split cork (or similar device) to hold the thread of the pendulum between the jaws of the clamp.
- (vi) Set square.

#### Notes

1. The pendulum, with a length of approximately 100 cm from the bottom of the split cork (or similar device) to the centre of the bob, must be set up for the candidates. (The boss and clamp should be near the top of the stand and the pendulum must be able to hang freely over the edge of the table.)
2. Candidates must be able to adjust the length of the pendulum easily.
3. The pendulum must be able to swing freely. It may be necessary to increase the stability of the clamp stand (for example, using a G-clamp or by placing a weight on the base).

#### Action at changeover

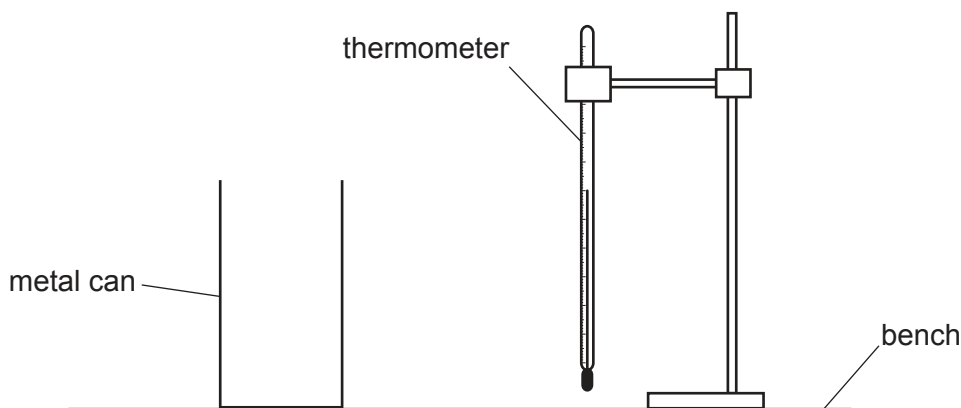
Arrange the pendulum as described in Note 1.

## Question 2

Items to be supplied by the centre (per set of apparatus, unless otherwise specified)

- (i) Thermometer,  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$ , graduated in  $1^{\circ}\text{C}$  intervals.
- (ii) Metal can with outer surface painted matt black.
- (iii)  $250\text{ cm}^3$  measuring cylinder graduated in  $2\text{ cm}^3$  or  $5\text{ cm}^3$  intervals. A  $100\text{ cm}^3$  measuring cylinder, graduated in  $1\text{ cm}^3$  or  $2\text{ cm}^3$  intervals will be sufficient if a  $250\text{ cm}^3$  is not available.
- (iv) Stop-watch or stop-clock or wall-mounted clock showing seconds. The question will refer to a stop-watch.
- (v) Supply of hot water. See notes 1 and 2.
- (vi) Supply of paper towels for candidates to handle their cans of hot water or to mop up any spills of water.

## Notes



**Fig. 2.1**

1. The hot water is to be supplied for each candidate by the supervisor. The water should be maintained at a temperature as hot as is reasonably and safely possible. Each candidate will require about  $250\text{ cm}^3$  of hot water.
2. Candidates should be warned of the dangers of burns or scalds when using very hot water in metal cans. A folded paper towel or similar may be used to handle the can of hot water.
3. The metal can must be capable of holding  $250\text{ cm}^3$  of water.
4. The apparatus must be arranged as shown in Fig. 2.1.

**Action at changeover**

Empty the metal can and measuring cylinder.

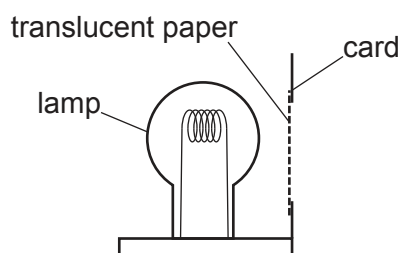
Dry the thermometer.

Check the supply of hot water.

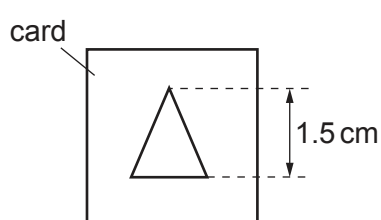
### Question 3

#### Items to be supplied by the centre (per set of apparatus unless otherwise specified)

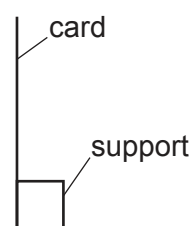
- (i) Converging lens, focal length 14 cm – 16 cm, with a suitable holder.
- (ii) Illuminated object with a triangular hole of height 1.5 cm. See Fig. 3.1 and Fig. 3.2.  
The hole is to be covered with thin translucent paper (e.g. tracing paper). See note 2.
- (iii) Metre ruler, graduated in mm.
- (iv) 30 cm ruler, graduated in mm. Candidates may use their own.
- (v) Screen. A white sheet of stiff card approximately 15 cm × 15 cm, fixed to a wooden support is suitable. See Fig. 3.3.



**Fig. 3.1**



**Fig. 3.2**



**Fig. 3.3**

#### Notes

1. The lamp for the illuminated object should be a low voltage filament lamp, approximately 24 W or higher power, with a suitable power supply. An LED lamp of equivalent brightness can be used.
2. The centre of the triangular hole which forms the object and the centre of the lens in its holder must be at the same height above the bench.
3. The apparatus is to be situated away from direct sunlight.
4. Spare lamps must be available.

#### Action at changeover

Check that the apparatus is ready for the next candidate.

### 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) .....