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Cambridge Assessment International Education

Cambridge IGCSE™

PHYSICS **0625/53**

Paper 5 Practical Test **October/November 2023**

CONFIDENTIAL INSTRUCTIONS

7327946203

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

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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.

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

Question 1

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

(i) Dry coarse sand (per candidate). See note 1.

(ii) 250 cm^3 measuring cylinder, labelled 'A', with graduations of 2 cm^3. See note 2.

(iii) 100 cm^3 measuring cylinder, labelled 'B', with graduations of 1 cm^3. See note 3.

(iv) Top-pan balance with a minimum resolution of 0.1 g. See note 4.

(v) Supply of cold water. See note 5.

(vi) Paper towels to soak up any water spills.

Notes

1. Each candidate will require a volume of approximately 120 cm^3 of sand.

2. Measuring cylinder A must be dry and clean when presented to each candidate.

3. Another 250 cm^3 measuring cylinder, labelled 'B', with graduations of no larger than 2 cm^3 is an acceptable alternative.

4. This item may be shared but candidates will require easy access during the experiment. The top-pan balance must be capable of measuring the mass of measuring cylinder A and an additional 200 g.

5. Each candidate will require approximately 120 cm^3 of water. The temperature of the water is not important.

Action at changeover

Replace measuring cylinder A, as in **(ii)**, with another clean dry measuring cylinder labelled A.
Supply a dry sample of sand, as in **(i)**.

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Question 2

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

(i) Thermometer: −10 °C to 110 °C, graduated in 1 °C intervals. See note 1.

(ii) Clamp, boss and stand. See note 1.

(iii) 250 cm^3 beaker, labelled 'A'. See note 2.

(iv) Lid to fit beaker A. Thick card is suitable. The lid must contain a hole to allow the thermometer to be inserted.

(v) 500 cm^3 beaker, labelled 'B'. See note 2.

(vi) Supply of cold water. See note 3.

(vii) Supply of hot water. See notes 4 and 5.

(viii) Stop-watch, stop-clock or wall-mounted clock showing seconds. Candidates will be required to take readings at 30-second intervals. The question will refer to a stop-watch.

(ix) Paper towels to soak up any water spills.

Notes

1. The thermometer, clamp, boss and stand are to be set up for candidates as shown in Fig. 2.1.
The thermometer bulb must be well below the 100 cm^3 level of beaker B.
Candidates must be able easily and safely to read temperatures up to 100 °C and to move the thermometer in and out of the beakers.

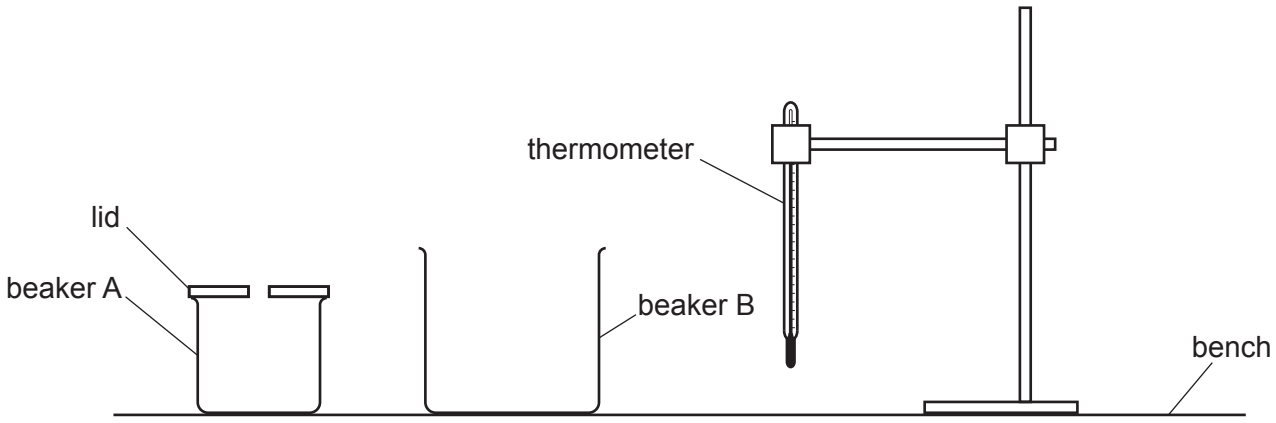

Fig. 2.1

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2. Beaker A, with its lid, must be able to fit easily inside beaker B, leaving a small gap between the sides of the beakers. The level of 100 cm^3 of water poured into this gap must not reach the top of beaker A when it rests on the bottom of beaker B.
If the beakers are not graduated, the 150 cm^3 level must be marked on the side of beaker A with indelible marker. The 50 cm^3 and 100 cm^3 levels must be marked on the side of beaker B.

3. Each candidate will require approximately 200 cm^3 of cold water. The temperature of the cold water is not important.

4. Hot water is to be available for each candidate throughout the experiment. The hot water should be maintained at an approximately constant temperature of at least 80 °C.
Each candidate will require approximately 350 cm^3 of hot water.
Candidates must be able to pour hot water into and out of the beakers safely.

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

6. Spare lids and thermometers must be available.

Action at changeover

Empty the water from the beakers.
Check that the apparatus is intact and is arranged as in Fig. 2.1.

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Question 3

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

(i) Converging lens of focal length between 14 cm and 16 cm with a suitable holder.

(ii) Metre ruler, graduated in mm.

(iii) Illuminated object consisting of a rigid card with a triangular hole of height 2.0 cm. See Fig. 3.1.
The hole is to be covered with thin translucent paper (e.g. tracing paper) secured with adhesive tape. See note 1.

(iv) Plain white screen. A white sheet of stiff card approximately 150 mm × 150 mm, fixed to a wooden support, is suitable. See Fig. 3.2.

(v) 30 cm ruler, graduated in mm. Candidates may use their own.

Notes

1. The lamp used for the illuminated object should be low voltage, 24 W or greater, with a suitable power supply.

2. The centre of the triangular hole which forms the object and the centre of the lens in its holder must be the same height above the bench.

3. The apparatus should be situated away from direct sunlight.

4. Spare lamps must be available.

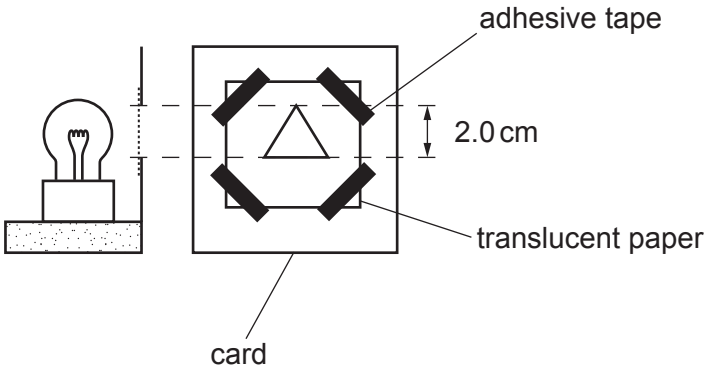

Fig. 3.1

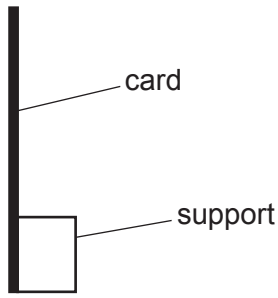

Fig. 3.2

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Action at changeover

Check that the apparatus is intact and that the lamp is working.
Switch off the lamp.

Question 4

No apparatus is 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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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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