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Cambridge Assessment International Education

Cambridge IGCSE™

PHYSICS **0625/52**

Paper 5 Practical Test **February/March 2024**

CONFIDENTIAL INSTRUCTIONS

5757083148

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.

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) Metre ruler of mass 100 g to 200 g with a scale graduated in mm. See note 1.

(ii) Triangular block to act as a pivot for the metre ruler. This block is to stand on the bench.

(iii) A 25 g mass, labelled 'load U', which is to stand on the metre ruler. See note 2.

Notes

1. The metre ruler should approximately balance on the pivot, with the scale facing upwards, when the 50.0 cm mark is over the pivot.

2. A 20 g mass with 5 g of modelling clay added is suitable. The load must be wider than the scale of the metre ruler which must not be visible through the load.

Action at changeover

Remove the load from the ruler.
Remove the ruler from the pivot.
Check that the apparatus is ready for the next candidate.

Information required by Examiners

A sample set of numerical results, clearly marked 'supervisor's results', obtained out of sight of the candidates.

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Question 2

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

(i) Three 5 Ω, 2 W resistors. Candidates must not be able to detect the values of these resistors. See notes 1 and 2. If sufficient numbers of 5 Ω resistors are not available then 4.7 Ω resistors may be substituted for all places in this question where the 5 Ω resistors are used.

(ii) 5 Ω, 2 W resistor to be connected in series with the power supply as shown in Fig. 2.1. The purpose of this protective resistor is to limit the current to under 1 A. It must be connected close to the power supply as shown in Fig. 2.1, so that it appears as part of the power supply.

(iii) Power supply of approximately 2–3 V. See note 3.
Where candidates are provided with a variable power supply, the voltage should be set by the supervisor and fixed, e.g. taped.

(iv) Switch. The switch may be an integral part of the power supply.

(v) Sufficient connecting leads to set up the circuit shown in Fig. 2.1 and four extra leads.

(vi) Ammeter capable of measuring currents up to 1.00 A with a resolution of at least 0.02 A. See note 4.

(vii) Voltmeter capable of measuring the potential difference of the supply with a resolution of at least 0.1 V. See note 4.

Notes

1. The circuit is to be set up for candidates as shown in Fig. 2.1.
The three 5 Ω resistors with obscured values must be connected in series between two terminals labelled P and Q as shown in Fig. 2.1.

The switch must be open.

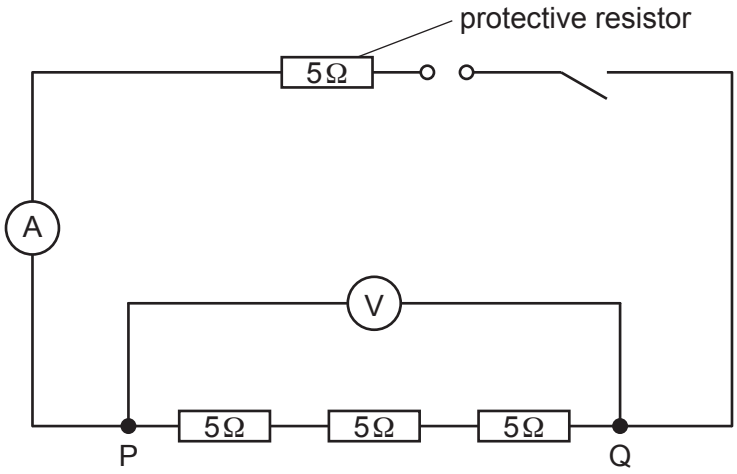


Fig. 2.1

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2. The three 5Ω resistors with obscured values must be fitted with connectors which enable candidates easily and quickly to disconnect and connect them in the circuit.
Spare resistors must be available.

3. If cells are used, they must remain adequately charged throughout the examination. Spare cells must be available.

4. Either analogue or digital meters are suitable. Any variable settings should be set by the supervisor and fixed, e.g. taped.

Action at changeover

Connect the circuit as shown in Fig. 2.1 and check that the circuit is working.
Open the switch.

Information required by Examiners

A sample set of numerical results, clearly marked ‘supervisor’s results’, obtained out of sight of the candidates.

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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 filament lamp used for the illuminated object should be low voltage, 24 W or greater, with a suitable power supply. An l.e.d. 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 the same height above the bench.

3. The apparatus is to be situated away from direct sunlight.

4. Spare lamps must be available.

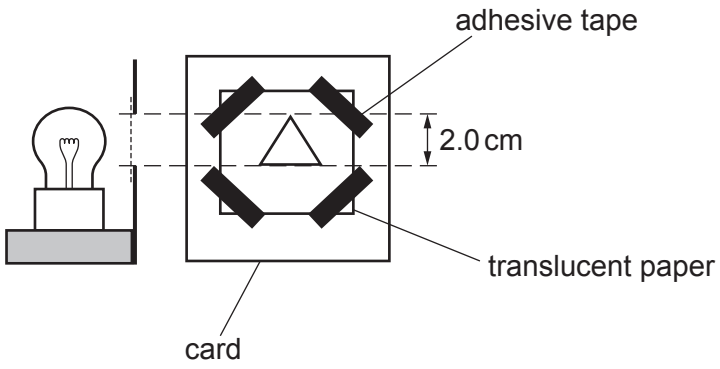


Fig. 3.1

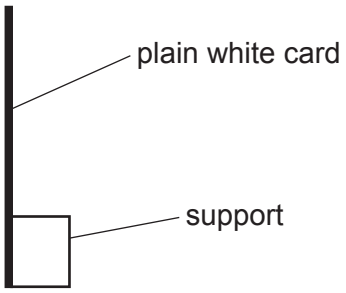


Fig. 3.2

Action at changeover

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

Information required by Examiners

A sample set of numerical results, clearly marked ‘supervisor’s results’, obtained out of sight of the candidates.

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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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