



Cambridge IGCSE™

PHYSICS**0625/53**

Paper 5 Practical Test

October/November 2020**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.

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 **8** pages. 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

Question 1

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

- (i) Two 250 cm³ beakers, one labelled A and the other labelled B. See note 1.
- (ii) Lid for beaker B, with a hole to allow a thermometer to be inserted. See note 2.
- (iii) Thermometer: –10 °C to 110 °C, graduated in 1 °C intervals. See note 3.
- (iv) Clamp, boss and stand. See note 3.
- (v) Stopclock or stopwatch or wall-mounted clock showing seconds. Candidates will be required to take readings at 30-second intervals. The question will refer to a stopclock.
- (vi) Supply of hot water. See notes 4 and 5.
- (vii) Paper towels to soak up any water spillages.

Notes

1. If the beakers do not have graduations at 100 cm³, indelible marks must be drawn on the sides of the beakers at the 100 cm³ level and labelled **100 cm³**.
2. Thin cardboard is a suitable material for the lid. Spare lids must be available.
3. The thermometer must be supplied mounted in the clamp, so that the bulb of the thermometer will be well below the 100 cm³ level in each beaker. 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.
4. Hot water is to be available for each candidate throughout the experiment. The hot water should be maintained at an approximately constant temperature between 80 °C and 100 °C. Each candidate will require about 250 cm³ of hot water in total. They must be able to pour hot water into the beakers safely.
5. Candidates should be warned of the dangers of burns and scalds when using hot water.

Action at changeover

Remove the thermometer from beaker B if the previous candidate has not already done this.

Empty the water from the beakers.

Check that the apparatus is intact.

Supply a new lid if necessary.

Question 2

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

- (i) Three $2\ \Omega$, 3W resistors, each labelled $2\ \Omega$. See note 2.
- (ii) A $3\ \Omega$, 3W resistor, labelled X. Candidates must not be able to identify the resistance value.
- (iii) Power supply of approximately 2V–3V. 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, with 2 spare leads.
- (vi) Ammeter capable of measuring currents up to 2.00A with a resolution of at least 0.05A. See note 4.
- (vii) Voltmeter capable of measuring the potential difference of the supply with a resolution of at least 0.1V. See note 4.

Notes

1. The circuit is to be set up for candidates as shown in Fig. 2.1. Two terminals must be labelled P and Q and candidates must be able easily and quickly to connect and disconnect circuit components between them.
The circuit should be switched off.

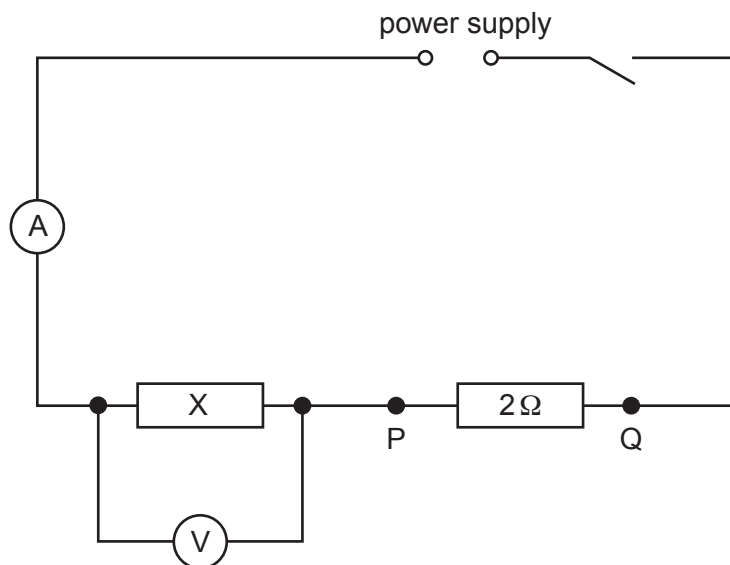


Fig. 2.1

2. The $2\ \Omega$ resistors must have suitable terminals so that candidates are able easily and quickly to rearrange the circuit. Spare resistors should 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. Spare meters should be available.

Action at changeover

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

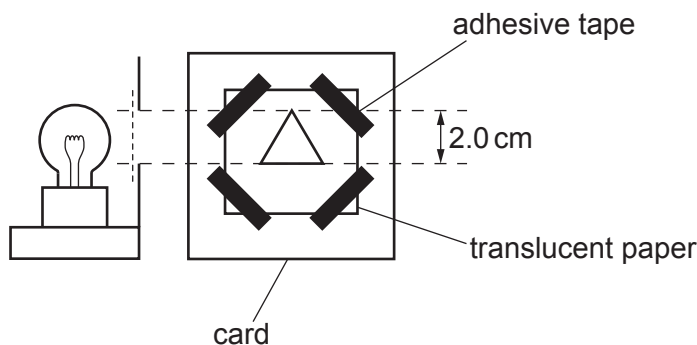
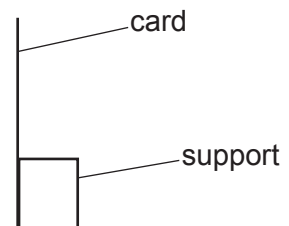
Switch the circuit off.

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 rule, 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 lamp filament, the centre of the hole which forms the object and the centre of the lens in its holder must all be the same height above the bench.
3. The apparatus should be situated away from direct sunlight.

**Fig. 3.1****Fig. 3.2****Action at changeover**

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

Replace or re-cover the screen if it has been marked.

Switch the lamp off.

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 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)