Cambridge Assessment International Education

Cambridge IGCSE™

PHYSICS **0625/53**

Paper 5 Practical Test **May/June 2025**

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

DC (CJ/JG) 342230/1

[Turn over

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.

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) Metre ruler, graduated in mm, of weight approximately 1 N to 2 N. See note 1.

(ii) 3 × loops of thread or light string. See note 2.

(iii) 2 × force meters, labelled 'X' and 'Y', each capable of reading forces up to 2.5 N with a precision of 0.05 N. See note 4.

(iv) 150 g mass, incorporating a hanger and labelled '1.50 N load'. This can be formed from a 100 g mass hanger surrounded by modelling clay.

(v) 2 × bosses, 2 × clamps and 2 × stands.

(vi) Set square.

(vii) 50 cm or 30 cm ruler graduated in mm. Candidates may use their own.

(viii) Spare loops of thread, as in **(ii)**.

Notes

1 If the metre ruler has two scales in opposite directions, one scale must be taped over.

2 One loop of thread must be looped around the metre ruler so that the 1.50 N load, as in **(iv)**, may be suspended from it in different positions. The other loops must be fixed (taped) at the 0.0 cm and 100.0 cm marks so that the ruler may be suspended from the force meters as shown in Fig. 1.1.

3 The apparatus must be set up for the candidates as shown in Fig. 1.1, with the metre ruler suspended with its scale facing upwards. The position of the 1.50 N load on the metre ruler is not important. However, when the 1.50 N load is suspended at various points between the 10.0 cm and 90.0 cm marks, the load must be clear of the bench. The force meters and loops of thread supporting the metre ruler must be vertical. Candidates must be able to move at least one clamp slightly so that the metre ruler remains horizontal during the experiment.

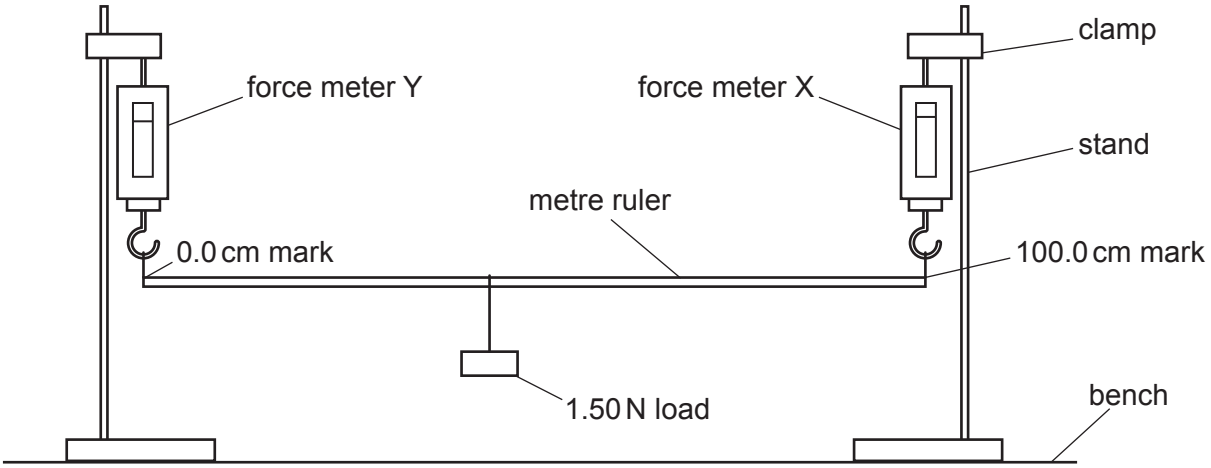

Fig. 1.1

4 The force meters must not exceed their full-scale deflection when the load is suspended at the 10.0 cm or 90.0 cm marks. If they do, force meters capable of reading higher values must be used. Each force meter scale must be set to zero when the force meters are suspended freely from the clamps **before** attaching the ruler.

Action at changeover

Check that the force meters are set to zero as described in note 4.
Check that the apparatus is arranged as shown in Fig. 1.1.

Information required by examiners

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

Question 2

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

(i) 250 cm^3 beaker. See note 1.

(ii) Thermometer, –10 °C to 110 °C, graduated in 1 °C intervals.

(iii) Clamp, boss and stand. See note 2.

(iv) Supply of hot water. See notes 3 and 4.

(v) Stop-watch or stop-clock or wall-mounted clock showing seconds. The question will refer to a stop-watch.

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

Notes

1 If the beaker is not graduated, the 200 cm^3 level must be marked on the side of the beaker.

2 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 the beaker. Candidates must be able easily and safely to read temperatures up to 100 °C and to move the thermometer into and out of the beaker.

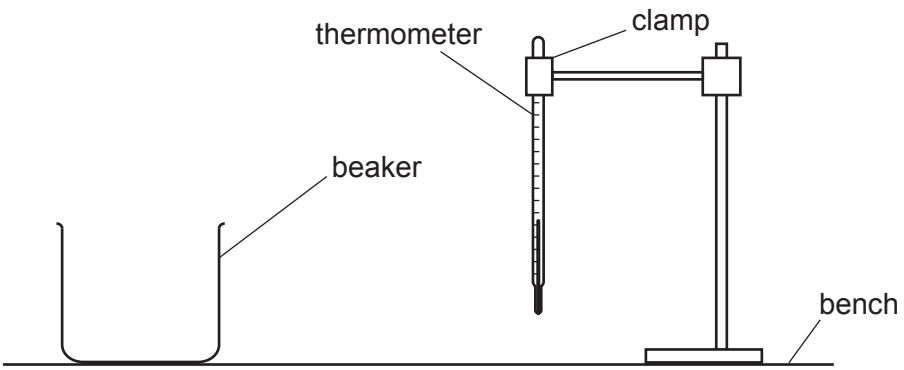

Fig. 2.1

3 Hot water must be available for each candidate throughout the experiment. The hot water must be maintained at an approximately constant temperature of at least 80 °C. Each candidate will require about 250 cm^3 of hot water in total. Candidates must be able to pour hot water into and out of the beaker safely.

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

5 Spare thermometers must be available.

Action at changeover

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

Information required by examiners

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

Question 3

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

(i) 3 × 2 W, 3 Ω resistors, labelled 'R_P', 'R_1' and 'R_2'. Candidates must **not** be able to detect the values of the resistors. See note 2.

(ii) 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).

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

(iv) Sufficient connecting leads to set up the circuit shown in Fig. 3.1 plus two spare leads.

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

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

Notes

1 The circuit is to be set up for candidates as shown in Fig. 3.1. Candidates must be able easily and quickly to disconnect and connect circuit components. The voltmeter must be connected to terminals labelled ‘P’ and ‘Q’ as shown in Fig. 3.1. The switch must be open.

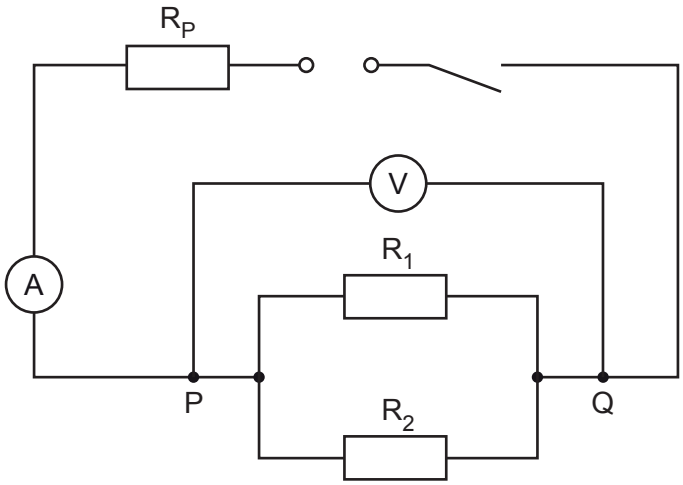

Fig. 3.1

2 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. 3.1 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.

Question 4

No apparatus is required for this question.

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.

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) .....