

Cambridge O Level

PHYSICS**5054/32**

Paper 3 Practical Test

May/June 2026**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.

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

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):

- clamp, boss and stand
- pendulum bob attached to approximately 90 cm of thread (see Notes 1 and 2)
- split cork or similar to hold the thread in the clamp
- metre rule with a millimetre scale
- stopwatch.

Notes

- 1 The pendulum must be set up for candidates as shown in Figure 1.1.

The length l of the pendulum must be approximately 50 cm from the bottom of the split cork to the centre of the pendulum bob.

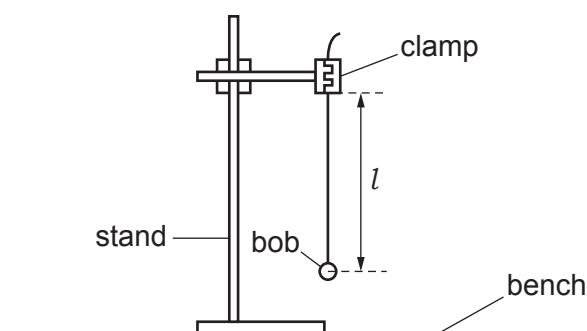


Figure 1.1

- 2 Candidates must be able to adjust the length of the pendulum easily up to a length of 70 cm.

Retort stands with a height of 70 cm or less may be used if the retort stand is reversed so that the pendulum is suspended below the level of the bench.

In this case, the base of the stand should now be secured with a G-clamp or heavy weight, and the difference between the diagram in Figure 1.1 and the actual arrangement of the apparatus should be pointed out to the candidates.

Action at changeover

The pendulum must be restored to the state described in Note 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):

- $2 \times 250 \text{ cm}^3$ beakers labelled P and Q, each with the 200 cm^3 level marked (see Note 1)
- stirring thermometer, measuring from -10°C to 110°C , graduated in 1°C intervals
- supply of hot water at approximately 80°C (see Notes 1 and 3)
- stopwatch
- insulation (see Note 2)
- lid (see Note 2)
- paper towels to mop up any water spillages.

Notes

- 1 Each candidate will require 400 cm^3 of hot water. The hot water should be supplied and maintained at a constant temperature of between 80°C and 90°C . The supervisor will be asked by each candidate to fill a beaker with 200 cm^3 of hot water at different times during the experiment. To facilitate the filling of the beaker with water without removing the insulation, the 200 cm^3 mark should be visible when viewing the inside of the beaker.

Several electric kettles are suitable to ensure that the water provided is at the required temperature.

- 2 The beakers should be supplied as shown in Figure 2.1. Beaker P must have a layer of insulation made from newspaper, cotton wool, corrugated cardboard or similar, approximately 5 mm thick, and fixed to the outside of the beaker with rubber bands or tape.

Beaker Q must have a lid made from a piece of card approximately 2 mm thick, in which there is a hole to insert the thermometer.

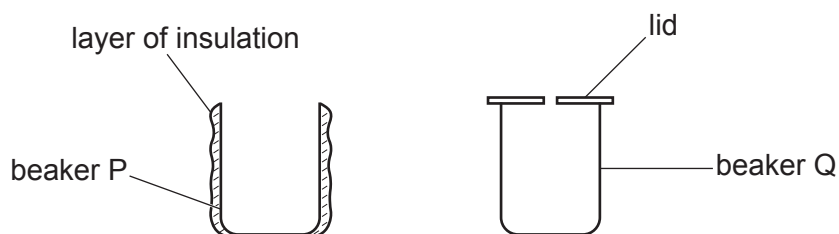


Figure 2.1

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

Action at changeover

Remove the thermometer from the beaker, and empty the water from the beakers.

Check the condition of the insulation and the lid.

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):

- 3 dry cells connected in series by means of a suitable holder(s) to form a 4.5 V battery (see Note 1)
- switch
- ammeter capable of measuring currents up to 1.0 A with a precision of 0.05 A or better (see Note 3)
- voltmeter capable of measuring a potential difference up to 5 V with a precision of 0.1 V or better (see Note 3)
- resistors of resistances $12\ \Omega$, $15\ \Omega$, $18\ \Omega$, $22\ \Omega$ and $33\ \Omega$, with a power rating of 2 W (see Note 4)
- 8 connecting leads.

Notes

- 1 The 4.5 V battery should provide a minimum voltage of 3.0 V when connected across the $12\ \Omega$ resistor.
- 2 The supervisor must arrange the circuit shown in Figure 3.1 for the candidates in advance of the examination.

Terminals P and Q must be labelled and be suitable to connect to the resistors. Dry cells must be used as a power source.

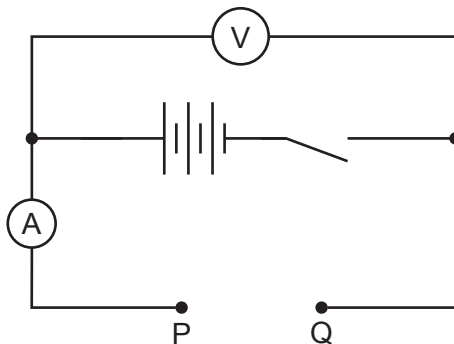


Figure 3.1

- 3 An analogue or digital meter is suitable. If a digital multimeter is used, the dial must be set to the correct range and then taped over. Unused terminals must also be taped over.
- 4 The supervisor must label each resistor with its value.

The RS Components International component codes of suitable resistors are:

$12\ \Omega$: 683-5650
 $15\ \Omega$: 683-5653
 $18\ \Omega$: 683-5657
 $22\ \Omega$: 683-5666
 $33\ \Omega$: 683-5663.

The resistors must be connected to terminals that will enable them to be connected into the rest of the circuit.

Action at changeover

The battery should be tested to ensure that it still provides a minimum voltage of 3 V when connected across a $12\ \Omega$ resistor, and the cells should be replaced if necessary.

The circuit must be restored to its original state as shown in Figure 3.1, with the switch open and the resistors placed by the side of the circuit.

Information required by examiners

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

Question 4

Planning question – 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)