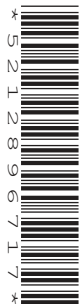

PHYSICS

0625/53

Paper 5 Practical Test

May/June 2019

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.

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.

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This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **8** printed 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.

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) Metre rule with a scale graduated in mm. See note 1.
- (ii) Triangular block to act as a pivot for the metre rule. This block is to stand on the bench.
- (iii) Object of mass = 200 g, labelled M. See note 2.
- (iv) Object of mass = 100 g, labelled U. See note 2.

Notes

1. The metre rule should approximately balance on the pivot, with the scale facing upwards, when the 50.0 cm mark is over the pivot.
2. The objects must be of regular shape and be able to stand on the rule.
Two 100 g stacking masses taped together would be suitable for M.
Candidates must not be able to identify the mass of U. A cube shaped piece of modelling clay or a mass of less than 100 g covered in modelling clay would be suitable for U.

Action at changeover

Check that the apparatus is ready for the next candidate.

Question 2

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

- (i) Two thermometers: -10°C to 110°C , graduated in 1°C intervals. See note 1.
- (ii) Clamp, boss and stand. See note 1.
- (iii) 400 cm^3 beaker. See notes 1 and 2.
- (iv) Boiling tube of capacity approximately 70 cm^3 or greater. See note 1.
- (v) 100 cm^3 measuring cylinder. Larger measuring cylinders are suitable provided that candidates can measure volume to a precision of at least 10 cm^3 .
- (vi) Supply of hot water. See notes 3 & 4.
- (vii) Supply of cold water at room temperature. See note 5.
- (viii) Stopclock or stopwatch or wall-mounted clock showing seconds. Candidates will be required to take readings at 30-second intervals. They may use their own wristwatches. The question will refer to a stopclock.
- (ix) Paper towels to soak up any water spills.

Notes

1. The apparatus is to be set up for candidates as shown in Fig. 2.1. The boiling tube must be a small distance above the base of the beaker. Candidates must be able easily and safely to read temperatures up to 100°C and to move the boiling tube into the beaker.

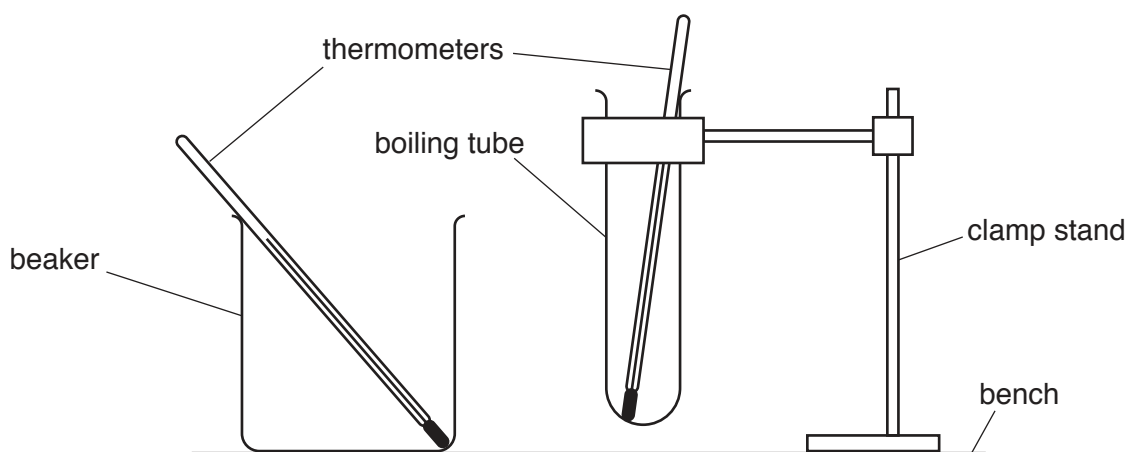


Fig. 2.1

2. If the beaker does not have volume markings, the 300 cm³ level must be marked or a suitable additional measuring cylinder supplied.
3. 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 400 cm³ of hot water in total.
They must be able to pour hot water into the beaker safely.
4. Candidates must be warned of the dangers of burns or scalds when using very hot water.
5. Each candidate will require about 100 cm³ of cold water.

Action at Changeover

Empty the water from the beaker and boiling tube.

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) Three 3 W resistors, one $5\ \Omega$, labelled X, one $10\ \Omega$, labelled Y, and another $10\ \Omega$, labelled Z. Candidates must not be able to identify resistance values. See note 2.
- (ii) Power supply of approximately 2 V–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, with 4 spare leads.
- (v) Ammeter capable of measuring currents up to 2.00 A with a resolution of at least 0.05 A. See note 4.
- (vi) Voltmeter capable of measuring up to 3.0 V 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. 3.1. The voltmeter must have leads and terminals that enable it to be connected to different parts of the circuit.

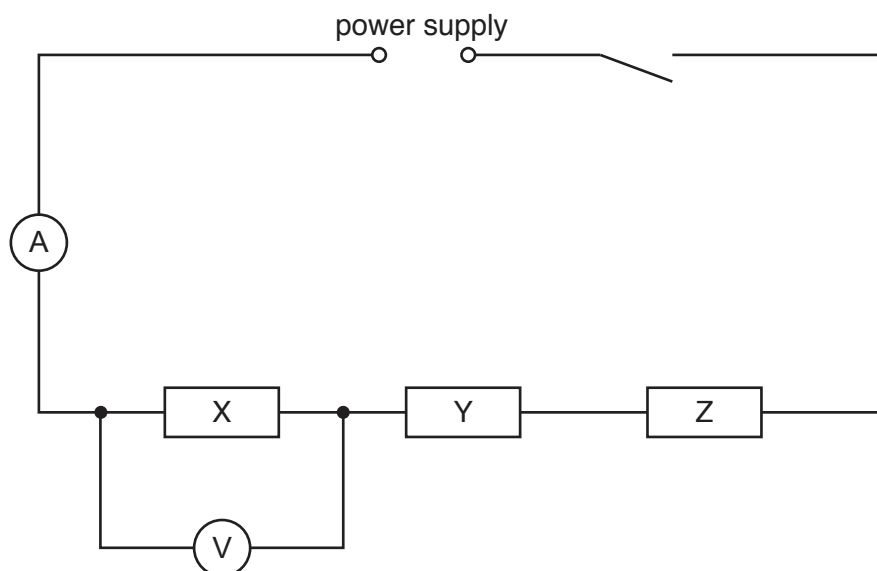


Fig. 3.1

2. The 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. 3.1 and check that the circuit is working.
Switch the circuit off.

Question 4

No apparatus is required for this question.

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)