



# Cambridge IGCSE™

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## PHYSICS

0625/52

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.**

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### 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](mailto:info@cambridgeinternational.org)  
phone      +44 1223 553554

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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.

### 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 experiment in Question 1 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) Steel spring. See note 1.
- (ii) Clamp, boss and stand.
- (iii) Metre rule, graduated in mm. See note 2.
- (iv) Masses of 20g, 40g, 60g, 80g and 100g. See note 4.
- (v) Set square.

#### Notes:

1. An expendable steel spring is suitable, for example a 55 mm long spring with a coiled length of 20 mm and a diameter of 15 mm (see [www.philipharris.co.uk](http://www.philipharris.co.uk)). The spring must be able to take a load of at least 2 N without overstretching. If new springs are used, they should be gently stretched a few times by hand, keeping well within the elastic limit of the springs.
2. The metre rule is to be held vertically, using a clamp, with the 100 cm end in contact with the bench.
3. The apparatus is to be set up for the candidates as shown in Fig. 1.1. The spring is to be sufficiently high above the laboratory bench that when the 1.0 N load is suspended from the spring, the bottom of the load is about 10 cm above the surface of the bench.

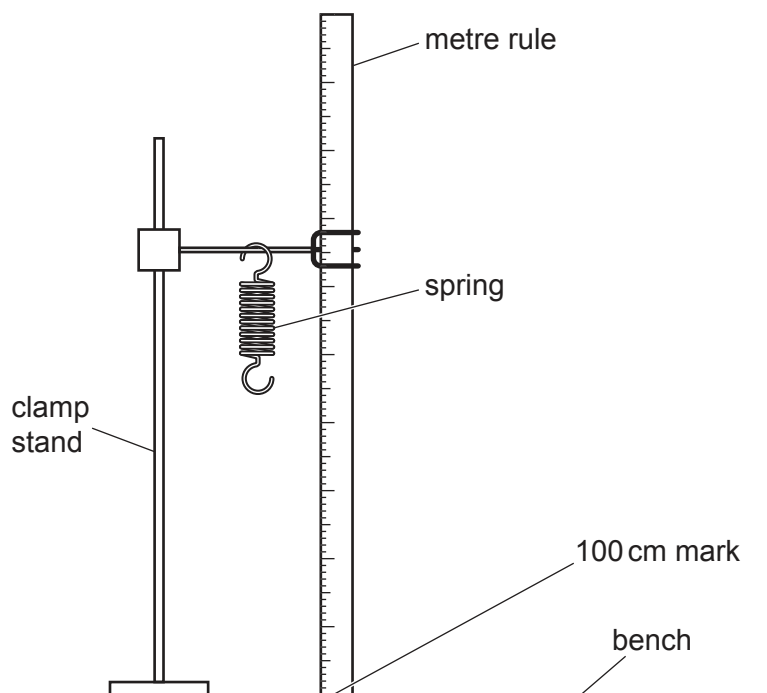


Fig. 1.1

4. Four 20g slotted masses with a 20g mass hanger, each labelled 0.2N, is ideal. If these are not available, a light hook must be provided so that loads of 0.2N, 0.4N, 0.6N, 0.8N and 1.0N, can be suspended from the spring.

### Action at changeover

Check that the apparatus is set up as shown in Fig. 1.1.

Check that the spring is still suitable for safe use.

### Question 2

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

- (i) Sheet of plain A4 paper (**per candidate**) with a hole in one corner so that it can be tied into the Question Booklet.
- (ii) Rectangular, transparent glass or Perspex block, 10 cm × 6 cm × 1.5 cm or similar size.
- (iii) 4 optics pins.
- (iv) Pin board e.g. a cork mat, A4 size or larger.
- (v) Protractor, graduated in 1° intervals (candidates may use their own).
- (vi) 30 cm ruler, graduated in mm (candidates may use their own).
- (vii) String or treasury tag (**per candidate**) to tie the ray-trace sheet ((i) above) into the Question Booklet.

### Notes

1. Spare sheets of plain paper should be available.
2. Spare pins should be available.

### Action at changeover

Supply a sheet of plain A4 paper (as in (i) above) and string or a treasury tag (as in (vii) above).

### Question 3

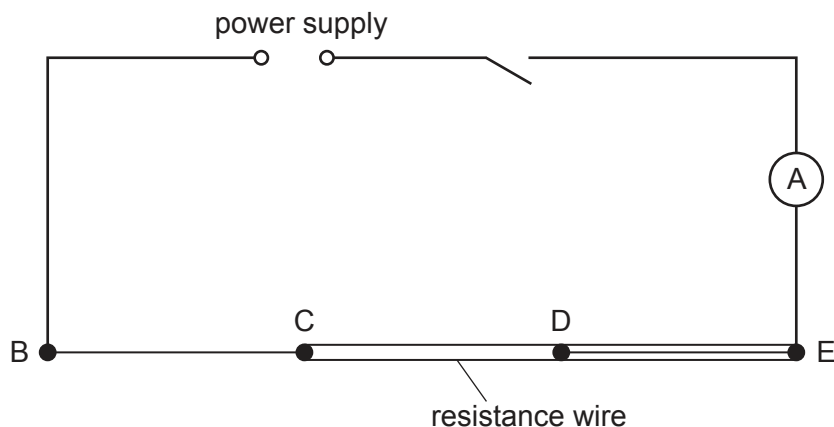
#### Items to be supplied by the centre (per set of apparatus unless otherwise specified)

- (i) Power supply of approximately 1.5V–3V. Where candidates are provided with a power supply with a variable output voltage, the voltage must be set by the supervisor and fixed (e.g. taped). See note 3.
- (ii) Switch. The switch may be an integral part of the power supply.
- (iii) Ammeter capable of reading up to 1.00A with a resolution of at least 0.05A. See note 4.
- (iv) Voltmeter capable of measuring the supply p.d. with a resolution of at least 0.1V. See note 4.
- (v) Approximately 200 cm of straight, bare constantan (Eureka) wire, diameter 0.45 mm (26 swg). See note 1.

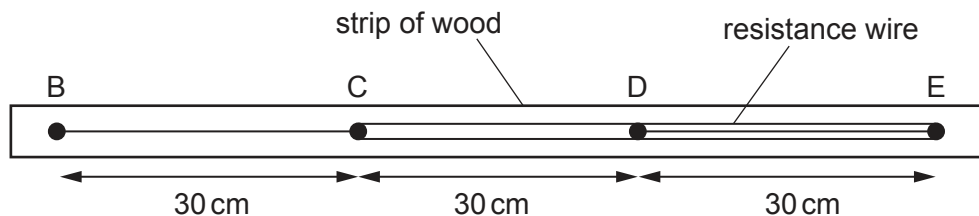
- (vi) Four suitable terminals labelled B, C, D and E fixed to a wooden strip at 30 cm intervals, as shown in Fig. 3.2, so that connections can be made to the circuit shown in Fig. 3.1.
- (vii) Sufficient connecting leads to set up the circuit shown in Fig. 3.1. Two additional leads should be connected to the voltmeter.

**Notes:**

1. The resistance wire must be cut into six equal lengths. A single length must be connected between terminals B and C. Two lengths must be connected in parallel between terminals C and D. Three lengths must be connected in parallel between terminals D and E. Check that there is good electrical contact at each of the terminals.
2. The circuit is to be set up for the candidates, as shown in Fig. 3.1 and Fig. 3.2.



**Fig. 3.1**



**Fig. 3.2**

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

**Action at changeover**

Check that the circuit is arranged as shown in Fig. 3.1.

Check that the circuit works. Switch 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) .....