



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**PHYSICS**

**0625/51**

Paper 5 Practical Test

**May/June 2015**

**CONFIDENTIAL INSTRUCTIONS**

**Great care should be taken to ensure that any confidential information given does not reach the candidates either directly or indirectly.**

If you have any problems or queries regarding these Instructions, please contact CIE  
by e-mail: [info@cie.org.uk](mailto:info@cie.org.uk),  
by phone: +44 1223 553554,  
by fax: +44 1223 553558,  
stating the Centre number, the nature of the query and the syllabus number quoted above.



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

This document consists of **8** printed pages.

### Instructions for preparing apparatus

The Supervisor is **not** allowed to consult the Question Paper before the examination. This teacher should, as part of the preparation of the examination requirements, test the apparatus in order to ensure that it is satisfactory.

The Supervisor is asked to give (and attach to the Report form printed on pages 7 and 8) a *brief* description of the apparatus supplied, mentioning any points that are likely to be of importance to the Examiner in marking the answers. The Supervisor should also report any assistance given to candidates. All reports should be signed by the Supervisor and by the person responsible for preparing the apparatus.

In addition to the usual equipment of a physics laboratory, each candidate will require the apparatus specified in these Instructions. If a candidate breaks any of the apparatus, or loses any of the material supplied, the matter should be rectified and a note made in the Report.

### Number of sets of apparatus

As a *minimum*, the number of sets of apparatus provided should be  $N/4$ , where  $N$  is the number of candidates (per session). A few spare sets should, preferably, be available to avoid any candidate being delayed when moving to another question.

Centres may find it more convenient and easier to administer if  $N/3$  sets (plus one or two 'spares') of apparatus are provided.

The order in which a given candidate attempts the four questions is immaterial.

### Assistance to Candidates

The purpose of the Practical Physics test is to find out whether the candidates can carry out simple practical work themselves. The Examiners are aware that candidates may sometimes be unable to show their practical ability through failure to understand some point in the theory of the experiment. If an Examiner were present in the laboratory, he/she would be willing to give a hint to enable such a candidate to get on with an experiment. In order to overcome this difficulty, the Supervisor is asked to co-operate with the Examiners to the extent of being ready to give (or allow the Physics teacher to give) a hint to a candidate who is unable to proceed.

The following regulations must be strictly adhered to.

- (i) No hint may be announced to the candidates as a whole.
- (ii) A candidate who is unable to proceed and requires assistance must come up to the Supervisor and state the difficulty. Candidates should be told that the Examiners will be informed of any assistance given in this way.
- (iii) A report must be made of any assistance given to the candidate, with the name and candidate number of the candidate.

It is suggested that the following announcement be made to the candidates.

'The Examiners do not want you to waste time through inability to get on with an experiment. Any candidate, therefore, who is unable to get on with the experiment after spending five minutes at it may come to me and ask for help. I shall report to the Examiners any help given in this way, and some marks may be lost for the help given. You may ask me for additional apparatus which you think would improve the accuracy of your experiments, and you should say, on your script, how you use any such apparatus supplied.'

**Question 1**

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

- (i) Metre rule with a mm scale. See note 1.
- (ii) Triangular block to act as a pivot for the metre rule. This block is to stand on the bench.
- (iii) 200 g mass labelled **P**.
- (iv) 100 g mass labelled **Q**.

**Note**

1. The metre rule should approximately balance on the pivot when the 50 cm mark is over the pivot.

**Action at changeover**

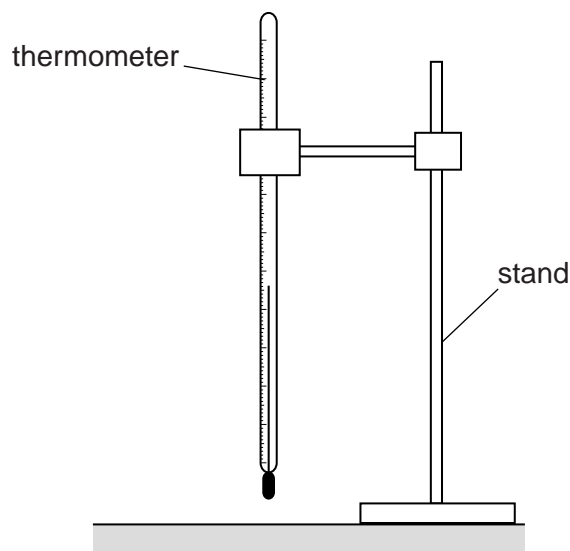
Check that the apparatus is ready for the next candidate.

**Question 2****Items to be supplied by the Centre (per set of apparatus, unless otherwise specified)**

- (i) Thermometer:  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$ , graduated in  $1^{\circ}\text{C}$  intervals.
- (ii)  $250\text{ cm}^3$  beaker containing approximately  $150\text{ cm}^3$  of hot water. See note 2.
- (iii) Clamp, boss and stand. See note 1.
- (iv) Stopclock, stopwatch or wall-mounted clock showing seconds. Candidates will be required to take readings at 30 s intervals. They may use their own wristwatch facility if they wish. The question will refer to a stopclock.
- (v) Supply of paper towels to mop up any spillages of water.

**Notes**

1. The thermometer, clamp, boss and stand are to be set up for the candidate as shown in Fig. 2.1.



**Fig. 2.1**

- 2. The hot water is to be supplied for each candidate by the Supervisor. The water temperature should be between  $80^{\circ}\text{C}$  and  $100^{\circ}\text{C}$ .
- 3. Candidates should be warned of the dangers of burns and scalds when using very hot water.
- 4. The candidates must be able easily and safely to move the thermometer in and out of the water.

**Action at changeover**

Replace the hot water.

Check that the thermometer is arranged as shown in Fig. 2.1.

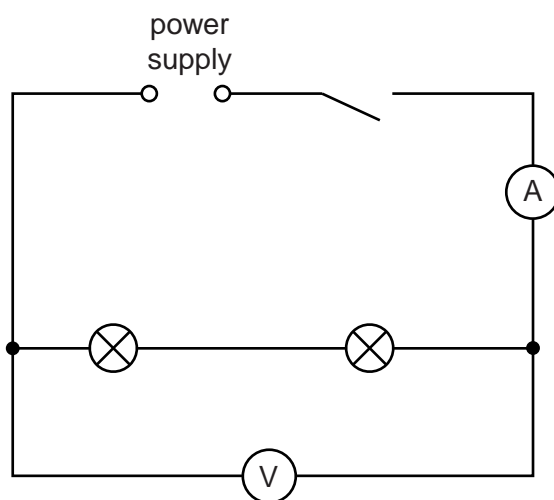
### Question 3

#### 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 setting should be set by the Supervisor and fixed (e.g. taped). See note 2.
- (ii) Two similar lamps in suitable holders. Any low voltage lamps will suffice, provided that they glow when connected as shown in Fig. 3.1, and will not blow if the lamps are connected in parallel.
- (iii) Switch. The switch may be an integral part of the power supply.
- (iv) Ammeter capable of reading up to 1.00 A with a minimum precision of 0.05 A. See note 4.
- (v) Voltmeter capable of measuring the supply p.d. with a minimum precision of 0.1 V. See note 4.
- (vi) Sufficient connecting leads to construct the circuit shown in Fig. 3.1, with two additional leads. See note 3.
- (vii) Spare lamps and spare leads should be available.

#### Notes

1. The components are to be connected by the Supervisor as shown in Fig. 3.1.



**Fig. 3.1**

2. If cells are used they must remain adequately charged throughout the examination. Spare cells should be available.
3. Candidates must be able easily and quickly to rearrange the circuit.
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

Set up the circuit so that it is arranged as shown in Fig. 3.1.  
Check the power supply and lamps.

## Question 4

### 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 (candidates may use their own).
- (vi) 50 cm or 30 cm rule, graduated in mm (candidates may use their own).
- (vii) String or treasury tag (*per candidate*) to tie 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).

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**This form must be completed and returned with the scripts.**

**REPORT ON PRACTICAL PHYSICS**

(IGCSE MAY/JUNE 2015)

*General*

The Supervisor is required to give details of any difficulties experienced by particular candidates giving their names and candidate numbers. These should include reference to:

- (a) difficulties due to faulty apparatus;
- (b) accidents to apparatus or materials;
- (c) any other information that is likely to assist the Examiner, especially if this cannot be discovered in the scripts;
- (d) any help given to a candidate.

*Information required*

A plan of workbenches, giving details by candidate number of the places occupied by the candidates for each experiment for each session, must be enclosed with the scripts.

The space below can be used for this, or it may be on separate paper.



*Information required (cont.)*

A list by name and candidate number of candidates requiring help, with details of the help provided.

CENTRE NO. ....

NAME OF CENTRE .....

*Declaration (to be signed by the Supervisor and the person responsible for preparing the apparatus)*

The preparation of the practical examination has been carried out so as to maintain fully the security of the examination.

SIGNED .....  
Supervisor

SIGNED .....  
Person responsible for preparing the apparatus

