

**International General Certificate of Secondary Education**  
**UNIVERSITY OF CAMBRIDGE LOCAL EXAMINATIONS SYNDICATE**  
**PHYSICS** **0625/5**

PAPER 5 Practical Test

CONFIDENTIAL INSTRUCTIONS

**OCTOBER/NOVEMBER SESSION 2001**

1 hour 15 minutes

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

**Instructions for preparing apparatus**

The teacher responsible for preparing the examination is **not** allowed to consult the question paper before the examination. Teachers should, as a part of the preparation of the examination requirements, perform the tests indicated on pages 3–6 in order to satisfy themselves that the supplied materials are satisfactory.

*N.B.* The candidates will be instructed not to write out a detailed description of the apparatus; instead, the Supervisor or teacher responsible 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 which are likely to be of importance to the Examiner in marking the answers. The Supervisor should also report any assistance given to candidates under the regulations explained on page 2. 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 on pages 3–6. 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.

If you have any problems or queries regarding these Instructions, please contact CIE

by e-mail: [International@ucles.org.uk](mailto:International@ucles.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.

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**These instructions consist of 8 printed pages.**

## Instructions for the Practical Physics Supervisor

### A *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 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 index 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 5 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.'

### B *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.

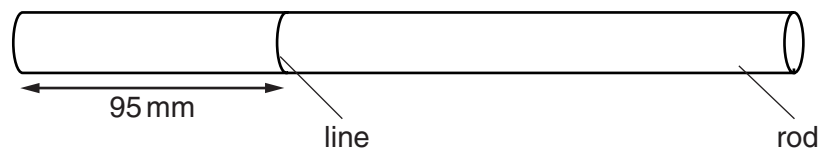
**Question 1**

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

- (i) wooden or plastic cylindrical rod approximately 250 mm long and 10 mm diameter (see Note 1 below)
- (ii) 100 cm<sup>3</sup> measuring cylinder containing 46 cm<sup>3</sup> of cold water (see Note 4 below)
- (iii) 1 m length of thin smooth string
- (iv) metre rule

**Notes:**

1. The wooden rod is to have a thin waterproof line drawn round the circumference at a distance of 95 mm from one end, as shown in Fig. 1.1.
2. Candidates will be required to dip the rod up to the line into the water.
3. At the change-over, check that the measuring cylinder contains 46 cm<sup>3</sup> of water.



**Fig. 1.1**

4. If the measuring cylinder is marked in ml, then this calibration should be covered with a white adhesive label, marked cm<sup>3</sup> in waterproof ink.

**Question 2**

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

- (i) voltage source of approximately 1.5–2.5 V. Where candidates are supplied with a voltage source with a variable output voltage, the voltage setting should be set by the Supervisor and fixed (e.g. taped).
- (ii) voltmeter, capable of measuring the supply p.d. with a minimum precision of 0.1 V
- (iii) ammeter, capable of reading up to 1.0 A with minimum precision of 0.05 A
- (iv) 2.5 V, 0.2 A lamp, labelled 'L'
- (v) 2.5 V, 0.2 A lamp, labelled 'M'
- (vi) 2.5 V, 0.2 A lamp, labelled 'N'
- (vii) switch, which may be an integral part of the power supply, in which case only 7 connecting leads are required
- (viii) 8 connecting leads

**Notes:**

1. The circuit is to be set up for the candidates as shown in Fig. 2.1.
2. The lamps must be in suitable holders.
3. The candidates will be required to set up the circuit shown in Fig. 2.2.
4. It must be possible to make good electrical connections easily.
5. At the change-over, check that the circuit is as shown in Fig. 2.1.

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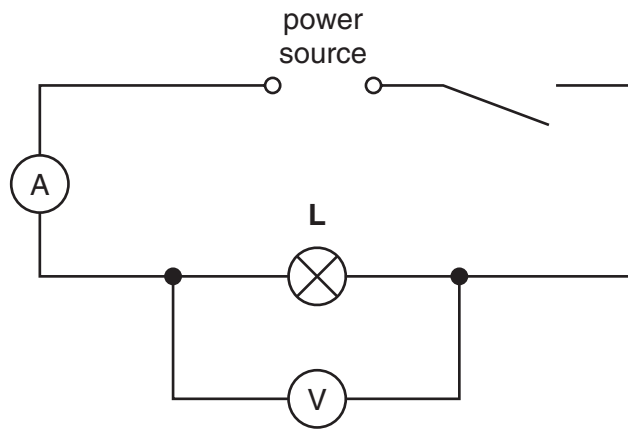


Fig. 2.1

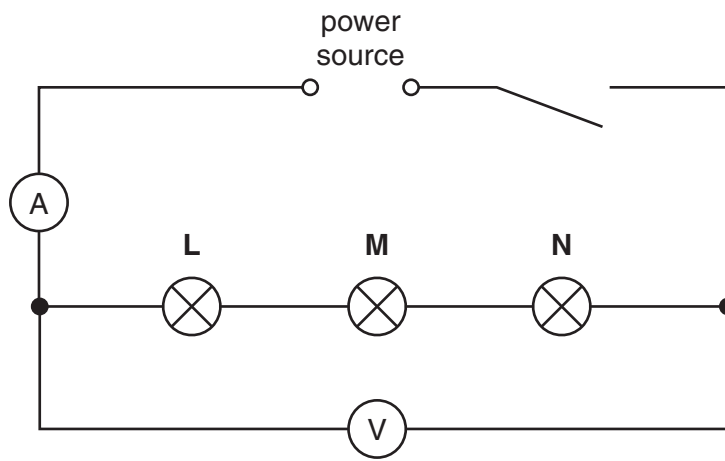


Fig. 2.2

**Question 3**

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

- (i) 4 optics pins
- (ii) pin board, 300 mm x 210 mm or larger, a cork mat would be suitable
- (iii) 300 mm or 500 mm rule, candidates may use their own
- (iv) transparent glass or perspex block approximately 115 x 65 x 20 mm
- (v) sheet of plain paper (297 mm x 210 mm) with a hole in the top left hand corner such that it can be tied into the Answer Booklet (*per candidate, plus some spares*)
- (vi) protractor

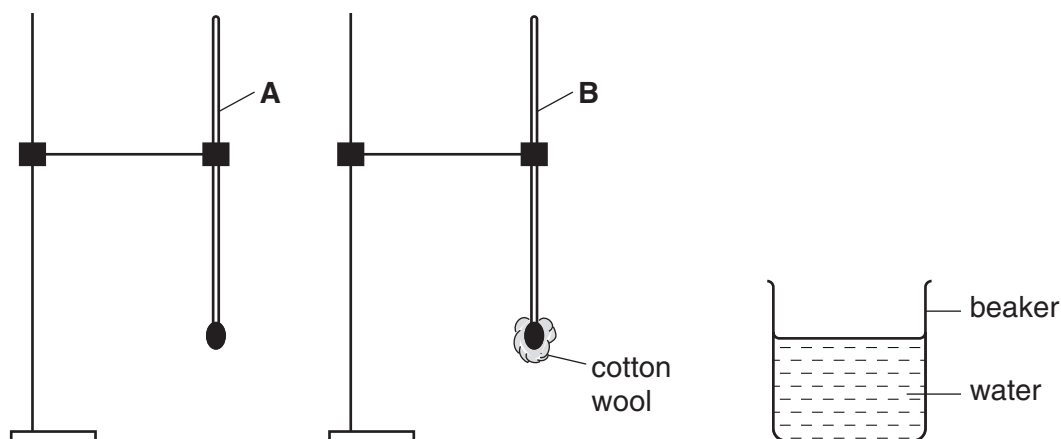
**Question 4**

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

- (i) two similar thermometers,  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$  (see Note 1 below)
- (ii) 2 clamps, 2 bosses, 2 stands
- (iii) stopclock or stopwatch
- (iv)  $250\text{ cm}^3$  beaker containing hot water

**Notes:**

1. The thermometers are to be labelled 'A' and 'B'. Thermometer **B** is to have cotton wool wrapped around the bulb and held in place with thread or an elastic band.
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 or scalds from very hot water.
4. The apparatus is to be set up as shown in Fig. 4.1.
5. The candidates must be able easily and safely to move the thermometers in and out of the water.

**Fig. 4.1**

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

**REPORT ON PRACTICAL PHYSICS**

(IGCSE NOVEMBER 2001)

*General*

The Supervisor is invited 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 index number of the places occupied by the candidates for each experiment for each session, must be enclosed with the answer booklets.



*Information required (cont.)*

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

CENTRE NO. ....

NAME OF CENTRE .....

*Declaration (to be signed by the Principal)*

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

SIGNED .....