

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education  
Advanced Subsidiary Level and Advanced Level

**PHYSICS**

**9702/03**

Paper 3 Practical Test

May/June 2006

CONFIDENTIAL INSTRUCTIONS

**1 hour 15 minutes**

**Great care should be taken 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: [International@cie.org.uk](mailto:International@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.

**Instructions for preparing apparatus**

These instructions detail the apparatus required for the experiment in this paper. No additional apparatus is permitted to the Question Paper in advance of the examination session.

It is assumed that the ordinary apparatus of a Physics laboratory will be available.

**Instructions for the Practical Physics Supervisor**

Candidates should be informed that, if they find themselves in real difficulty, they may ask the Supervisor for practical assistance but that the extent of this assistance will be reported to the Examiner, who may make a deduction of marks.

The Supervisor should complete the report form on pages 7 and 8 and enclose it in the envelope containing the answers of the candidates. A note of any help given to, or any particular difficulties experienced by, a candidate should also be enclosed, especially if the Examiner would be unable to discover these from the written answers.

It is assumed that candidates will provide themselves with such standard items as a 30 cm rule, a pair of compasses, a  $0^\circ$  to  $180^\circ$  protractor, a set square and a calculator.

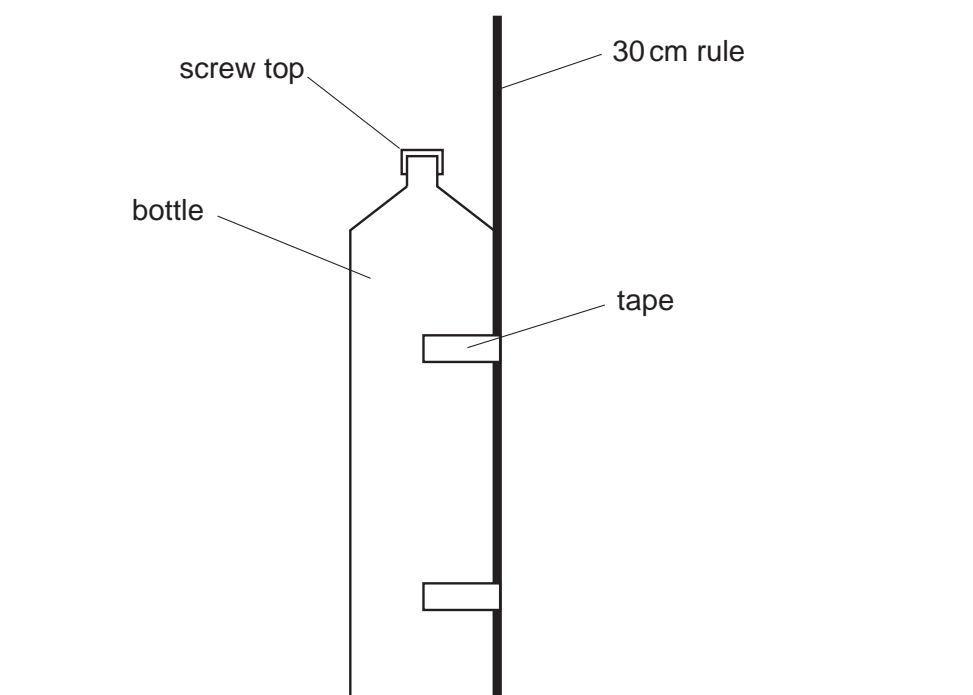
Squared paper should be available.

Whenever a stopwatch or stopclock is specified, candidates should be advised, in advance, that they may, if they wish, use quartz wristwatches with stopwatch facilities.

**Question 1****Apparatus requirements (per candidate)**

Clear plastic bottle between 20 and 30 cm tall with a screw top. Any label on the bottle should be removed.

30 cm rule. The rule should be taped to the side of the bottle as shown in Fig. 1.1. When the bottle is standing upright as shown, the end of the rule should be in contact with the bench top.



**Fig. 1.1**

Pair of scissors.

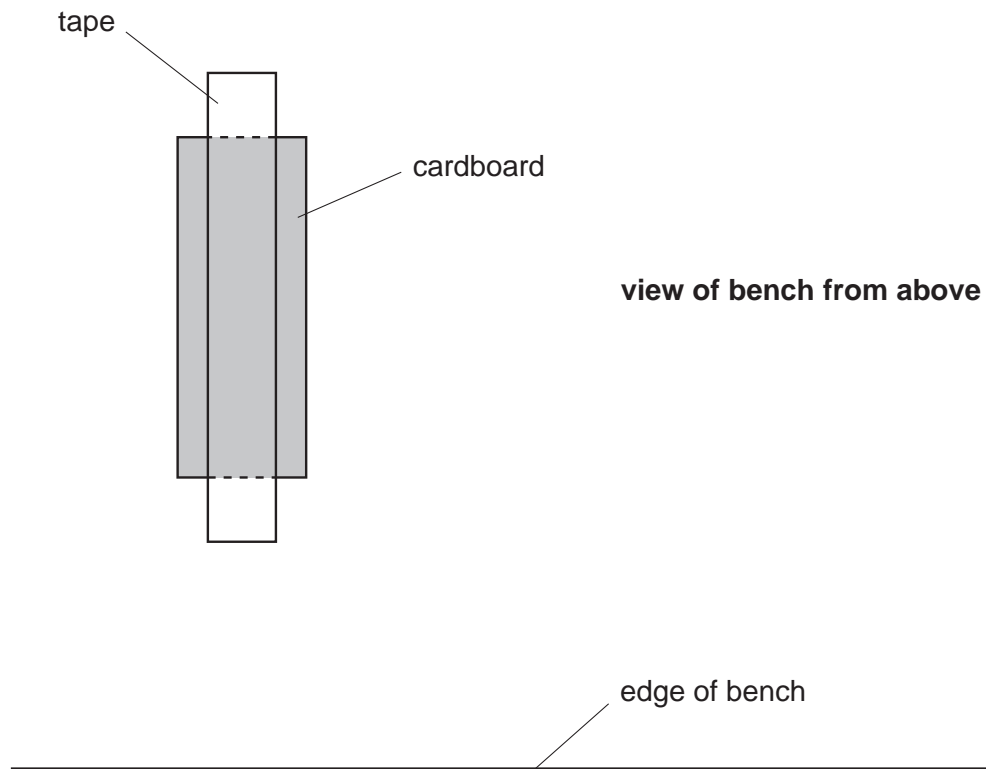
Four paper clips, at least 3 cm long.

Half-metre rule.

Optics pin.

Stopwatch reading to 0.1 s or better.

Strip of cardboard approximately 5 cm x 2 cm x 1 mm. Cardboard from the back of refined paper has been found to be suitable. This piece of cardboard is to be taped to the bench as shown in Fig. 1.2.



**Fig. 1.2**

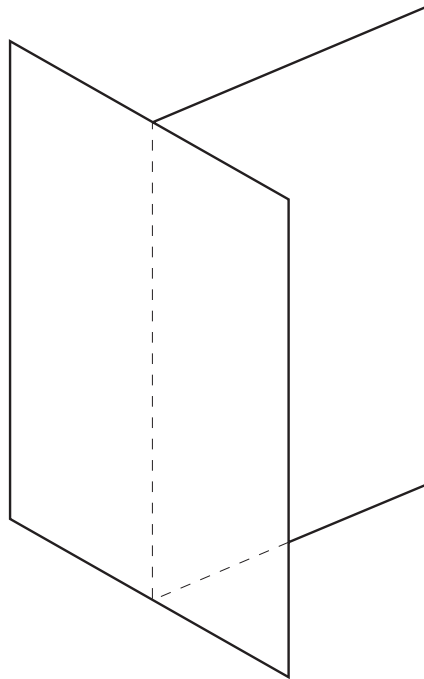
Funnel. The funnel must be small enough to fit into the top of the bottle with the rule taped in place.

Jug of water. The volume of water should be enough to fill the bottle.

500 cm<sup>3</sup> glass or plastic beaker.

Paper towels.

Two sheets of stiff A4 card. The sheets of card must not be bigger than A4 size, but may be smaller if necessary. The cards should be attached at right angles to each other as shown in Fig. 1.3.



**Fig. 1.3**

### Notes

- 1 The equipment should be laid out on the bench ready for the candidates.
- 2 If the apparatus is to be used by a second candidate then the bottle of water must be emptied and the jug of water refilled if necessary.

### Information required by the Examiners

None.

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This form should be completed and sent to the Examiner with the scripts.

## REPORT ON PRACTICAL PHYSICS

General Certificate of Education Advanced Subsidiary Level and Advanced Level

May/June Session 2006

### General

The Supervisor is invited to give details, on the reverse of this form, of any difficulties experienced by particular candidates, giving names and candidate numbers. These should include reference to:

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

Other cases of individual hardship, e.g. illness, disability, should be reported direct to CIE on the normal 'Special Consideration Form'.

In cases of faulty apparatus (not arising from a candidate's mishandling) which prevent the required readings being taken, the following action is permissible.

The Invigilator – in consultation with the Physics teacher responsible for preparing the examination – may allow extra time to give the candidate a fair opportunity to perform the experiment as if the fault had not been present. The candidate should use a spare copy of the Question Paper when the fault has been rectified or when working with a second set of apparatus. The Invigilator is asked to provide CIE with details of such cases of time compensation (a copy being enclosed with the scripts), especially

- (i) the candidate's name and candidate number,
- (ii) the extra time allowed,
- (iii) notes on the nature of the fault, the action taken to rectify the difficulty and any other comments that would be helpful to the Examiner in making a fair assessment of the candidate's work during the practical examination.





**Information required**

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

**Declaration** (to be signed by the Principal)

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

Signed .....

Centre Number .....

Name of Centre .....

