UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the November 2005 question paper

0625 Physics

0625/05   Paper 5   Maximum mark 40

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

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1 **(a) – (d)**

m in g, θ in degrees **[1]**
5 decreasing θ values **[1]**
5 sensible θ values **[1]**
evidence of θ to better than nearest 5° **[1]**

(e) no **[1]**
as m increases, θ decreases **[1]**

(f) good, clear diagram showing 'unused' part of protractor
OR description **[1]**
diagram shows way of coping (e.g. taping to bench so 0-180 line is
level with bench top)
OR description **[1]**

(g) good clear diagram showing (for example) rule at far end of rule to
measure depression
OR description **[1]**
clear on diagram that rule is vertical (e.g. use set square) or clamped at
constant angle
OR description **[1]**

[TOTAL 10]

2 **(a) – (g)**

I in A, V in V, R in Ω **[1]**
all I to 1 dp or better **[1]**
all V to 1 dp or better **[1]**
all R values correct arith **[1]**
consistent 2 or 3 sf for R **[1]**
AC R value 2 x AB value (± 10%) **[1]**
final R value 0.67 x AB value (± 10%) **[1]**

(h) diagram:
all components shown by correct symbols **[1]**
all components correctly connected **[1]**
ammeter correctly in series and voltmeter correctly in parallel **[1]**

[TOTAL 10]

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3 (b) – (d) and (f)

θ in $^{\circ}$, t in s   **[1]**
9 decreasing temperatures in first table   **[1]**
9 decreasing temperatures in second table   **[1]**

(e) and (g)

y axis labelled   **[1]**
suitable temperature scale (e.g. not '3' scale) with false origin
so that plots use more than half available space   **[1]**
plots correct to ½ small square (−1 each error)   **[2]**
well judged best fit curves   **[1]**

(h) Two from:

e.g. use a lid
insulate the bottom of the beaker
use a container that is a good conductor (metal)
use same volume/mass of water   **[2]**

                                                                                    [TOTAL 10]

4 (a) – (f)

trace
normal at 90° (by eye)   **[1]**
all lines and rays in approx correct positions   **[1]**
neat lines (not too thick)   **[1]**
one P_2P_3 distance > 5 cm   **[1]**
all P_2P_3 distance > 5 cm   **[1]**
r values within 2° of values on trace   **[1]**

(g) – (h)

3 sets of *x* and *r*   **[1]**
r values 45°, 27°, 18° (all $\pm 2^{\circ}$)   **[1]**

(i) Two from:
    e.g. thickness of mirror
    thickness of lines
    thickness of pins   **[2]**

                                                                                    [TOTAL 10]