UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2006 question paper

0625 PHYSICS

0625/05   Paper 5, maximum raw mark 40

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do 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.

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1   **(a)** M in g, sensible value
average m value correct

(b) h in mm, sensible value
t value correct (in mm)   **[1]**

(c) l and w in mm, sensible values (93 – 97, 53 – 57)   **[1]**
Calculation of V, unit mm^3 **[1]**

(d) d value correct   **[1]**
unit g/mm^3 **[1]**
2/3 sf   **[1]**

(e)   estimate of V_a 10 000 – 20 000 mm^3 (2/3 sf only)   **[1]**

[TOTAL: 10]

2   **(a)**   Diagram:
All correct symbols   **[1]**
Power source, lamp and ammeter in series   **[1]**
Voltmeter in parallel with lamp   **[1]**

(b) (i) I_1 to 2 dp   **[1]**
V_1 to at least 1 dp   **[1]**

(ii)   Correct calculation of R_1 **[1]**

(c) (i) I_2 and V_2 present   **[1]**

(ii) $R_2 < R_1$ **[1]**
all units correct   **[1]**
both R to 2/3 sf   **[1]**

[TOTAL: 10]

3   **(a)**   diagram or description showing
ends at same height above bench   **[1]**

(b)-(f)   five complete sets of F and d readings   **[1]**
$1/d$ values: 1.11, 1.18, 1.25, 1.33, 1.43   **[1]**
consistent 2/3 sf   **[1]**

(g)   Graph:
F axis suitable   **[1]**
Plots correct to ½ sq   **[1]**
Well judged, thin line   **[1]**

(h)   triangle method using at least ½ line   **[1]**
correct G value   **[1]**

(i)   Correct W in range 80 – 150 g, with correct unit and 2/3 sf   **[1]**

[TOTAL: 10]

4   Trace:

(a)-(i), **(k)** and **(l)** Neat and complete

(b)   Normal at 90° (by eye)   [1]

(c)   EFN = $30^o \pm 2^o$ **[1]**

(f) $P_3 P_4$ distance ≥ 5 cm   **[1]**

(k)   FI = b to 2 mm   **[1]**

(l)   IJ correctly drawn at 90° **[1]**

(h)   Candidate's a distance correct to 2 mm   **[1]**

(m)(j) Candidate's b & c distances correct to 2 mm   **[1]**

(n) n value correct   **[1]**
           2/3 sf and no unit   **[1]**

                                                                                                          [TOTAL: 10]