UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper for the guidance of teachers

0625 PHYSICS

0625/51 Paper 5 (Practical), maximum raw mark 40

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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1 **(a) & (b)** correct *d* values 5, 10, 15, 20, 25 [1]
x and *y* values present all less than 45 cm [1]

(c) graph:
axes labelled, *y*/cm and *x*/cm [1]
scales suitable, using at least half of grid [1]
all plots correct to nearest ½ small square [1]
well-judged, continuous, thin best-fit line [1]

(d) triangle method used and clearly shown, using at least half line [1]
readings from graph correct to ½ small square [1]

(e) *W* calculation correct with unit N and to 2 or 3 significant figures (ecf) [1]
W value between 0.7 and 1.4 [1]

[Total: 10]

2 **(a)** θ_c and θ_h sensible values [1]
θ_m between θ_c and θ_h unit °C [1]
Any two from:
stirring
waiting for temperature to stabilise
view thermometer scale at right angles
swift transfer [2]

(b) θ_c and θ_h sensible values, θ_m between θ_c and θ_h [1]
correct average [1]

(c) statement matches readings [1]
justified by reference to readings, to include idea of within (or beyond) limits of experimental accuracy [1]

(d) heat loss to surroundings o.w.t.t.e. [1]

(e) any one from:
lagging beakers
swifter transfer of water
lid on beaker [1]
measure temperature in cylinder

[Total: 10]

3 **(a)** all I values to 2 decimal places [1]
unit A at least once (and not contradicted) [1]
I_A and I_D both greater than I_B and I_C [1]
$I_A = (I_B + I_C)$ to 1 decimal place [1]

(b) $(I_B + I_C)$ correct [1]
statement matches readings [1]
justified by reference to readings [1]

(c) *V* to at least 1 decimal place and < 2.5(V) [1]
R correct, 2 or 3 significant figures and unit [1]

(d) voltmeter symbol correct and correctly connected [1]

[Total: 10]

4 **(a)–(f)** trace:
normal at 90° in correct position [1]
all lines present and neat [1]
AB correct position [1]
first P_2P_3 distance ⩾ 5.0cm [1]

(h)–(j) trace:
$\mathbf{M_1R_1}$ and **AC** correct [1]

table:
i values correct to 2° [1]
r values correct to 2° [1]
both *i* = *r* to 4° [1]

(l) any two from:
thickness of lines
thickness of mirror
thickness of protractor o.w.t.t.e.
thickness of pins/holes [2]

[Total: 10]