UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

0625 PHYSICS

0625/63 Paper 63 (Practical), maximum raw mark 40

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1 **(a)** table:
1/*d* values correct
0.0331, 0.0418, 0.0500, 0.0585 (0.058 to 2 sig. fig.), 0.0662 [1]
consistent 2 or 3 significant figures [1]

(b) graph:
axes labelled [1]
scales suitable, plots occupying at least half grid [1]
plots all correct to ½ square (ecf) – take centre of plot if large [1]
well judged line thin line (⩽½ square) [1]
(no mark if plots > ½ square)

(c) triangle method used and shown (any indication on graph) [1]
(triangle) using at least half line (can be seen in calculation) [1]

(d) μ 27 – 33 (NO ecf) [1]
2 or 3 significant figures and unit g [1]

[Total: 10]

2 **(a)** table:
t in s, θ in °C (either in words or mixture of symbols and words)
(NOT degrees/centigrade) [1]
times 30, 60, 90, 120, 150, 180 [1]

(b) both temperature falls correct (ignore unit or lack of unit) 26, 30 [1]

(c) justification matches statement (expect B)
and by reference to readings (need a comparison – not 'heat' or 'it')
B & temp fall [1]
in same time [1]

(d) any two from:
same starting temperature
stir/same thermometer position
same interval time
constant room temperature/carry out at same time
same volume/amount/mass of water
avoid draughts or wtte [2]
(NOT reference to container, insulation, precaution)
(extra answers: –1 if incorrect, ignore if neutral)

[Total: 7]

3 **(a)** diagram:
correct symbols for ammeter, voltmeter and lamps
(lamp – cross at least ½ diameter by eye) (ignore power source) [1]
voltmeter position correct [1]
lamps in parallel in a correct circuit (e.g. single voltmeter) [1]

(b) table:
V, A, Ω (any in symbols, words or a mixture) [1]
Correct *R* values 6.13, 6.00, 3.11 [1]
Consistent 2 or 3 significant figures [1]

(c) statement matches readings (expect NO) [1]
justification matches statement
and by reference to resistance results (don't need numbers) [1]

[Total: 8]

4 **(a)** normal labelled (allow N N' on end or N, N' alone) [1]

(b) P_1P_2 distance at least 3 cm [1]

(c) line to H drawn neatly and correctly [1]
θ correct to ±1° 60 [1]
(θ – 2i) correct 0 (ecf) (ignore sign) [1]
unit ° at least once in **(c)** and not contradicted [1]

(d) 2° (ignore unit and sign) [1]

(e) statement matches results (ecf)
expect YES if 0 and 2,
NO only if 'too different' or wtte in justification [1]
justification matches statement and by reference to results
(allow almost/nearly the same or within expt accuracy) [1]

[Total: 9]

5 **(a)** x = 3.9 and y = 5.4 (any answer correct when rounded to 2 sf) [1]
both with correct unit [1]
m = 1.38 no unit, 2 or 3 significant figures (allow x for unit)
or correct calculation from correct x and y [1]

(b) any two from:
clamp rule or place on bench
use area away from direct sunlight/dark room/bright object
ensure object and lens same height (from bench)
mark on lens holder (accept on lens)
screen and lens perpendicular to bench/aligned/in straight line/on principle axis
move lens slowly (backwards and forwards)
repeats
avoid parallax (or wtte) with action given 2

(c) scale drawn on paper on screen/graph paper on screen/
mark on screen (then) measure/clamp ruler on scale/
use translucent screen and measure from other side [1]

[Total: 6]