

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 $\frac{1}{2}$ square (ecf) – take centre of plot if large [1]
well judged line thin line ($\leq \frac{1}{2}$ square) [1]
(no mark if plots $> \frac{1}{2}$ 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 $^{\circ}\text{C}$ (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]**

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- 3 (a) diagram:
 correct symbols for ammeter, voltmeter and lamps
 (lamp – cross at least $\frac{1}{2}$ 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 $\pm 1^\circ$ 60 [1]
 $(\theta - 2i)$ correct 0 (ecf) (ignore sign) [1]
 unit $^\circ$ 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]

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- 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]