MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

0625 PHYSICS

0625/62   Paper 62 (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.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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

CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

UNIVERSITY *of* CAMBRIDGE
International Examinations

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, <u>plots</u> 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 <u>method</u> used and <u>shown</u> (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 <u>&</u> 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]

© UCLES 2010

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 <u>resistance results</u> (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]
$(\theta - 2i)$ 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 <u>correct</u> 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 <u>action</u> 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]