MARK SCHEME for the October/November 2010 question paper

for the guidance of teachers

0625 PHYSICS

0625/63   Paper 6 (Alternative to 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 is publishing the mark schemes for the October/November 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

1 (a) graph: axes labelled and scales suitable [1]
all plots correct to nearest ½ small square [2]
well judged best fit line [1]
thin best fit single line/no 'blobs' [1]

(b) statement matches line (expect YES) [1]
justification matches statement
(expect straight line through origin) [1]

(c) triangle method with more than half the line used [1]
clear how obtained – shown on graph [1]
m correct in kg, 2 or 3 significant figures [1]
1.39 – 1.45 kg - unit penalty

[Total: 10]

2 (a) θ_r = 27 [1]

(b) (i) t in s, θ in ^{o}C in both tables [1]

(ii) statement correct (about the same) [1]
justified – within limits – numbers similar, etc. [1]

(c) any two from:
same starting temperature
constant room temperature/avoid draughts
carry out at same time/place/time interval
same thermometer (wtte)
same mass/volume/amount of water
same type of beaker [2]

[Total: 6]

3 (a) (i) voltmeter symbol [1]
correct position [1]

(ii) variable resistor/rheostat [1]

(b) 2.2 marked [1]

(c) (i) correct values 6.11, 6.03, 6.12, 6.17, 6.09 [1]
consistent 2 or 3 significant figures [1]

(ii) V, A, Ω [1]

(iii) statement matches results (expect YES) [1]
explanation matches statement (expect same within limits of experimental accuracy) [1]

[Total: 9]

4 **(a)** *a* correct   9.9 – 10cm   [1]

(b) *y* correct (3 × *a*) 30cm   allow ecf from **(a)**   [1]

(c) at least two readings recorded   [1]
  d = 2.8cm   [1]

(d) **(i)** s^2 values correct 4.84, 5.76, 6.76, 7.84, 9.61   [1]
  consistent number of significant figures (2 or 3)   [1]

  (ii) statement matching results (expect YES)   [1]
  justification matches statement (expect within limits of experimental accuracy,
  or 'close enough', or wtte)   [1]

(e) any two of:
  use of darkened room
  how to avoid parallax when measuring distances
  use of marks paper on screen to aid measurements
  repeat (and average)
  screen/object card perpendicular to bench   [2]

  [Total: 10]

5 **(a)** three from:
  length/diameter/number of coils of spring – any two for 1 mark each
  mass of spring
  selection of loads
  (NOT room temperature)   [3]

(b) l_o shown and l shown (consistent with l_o)   [1]

(c) use of fiducial aid   [1]

  [Total: 5]

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