UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

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.

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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]

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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]