UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2009 question paper

for the guidance of teachers

0625 PHYSICS

0625/06   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) (i) d 0.5 cm or 5mm [1]

   (ii) x 10.0 [1]

   (b) (i)–(iii)
   table: T 1.0, 0.95, 0.895 (0.90, 0.9), 0.84, 0.775 (0.78) [1]
   T^2 1.00, 0.903, 0.801, 0.706, 0.601 (if T correct) [1]

   (c) graph:
   axes labelled [1]
   scales suitable, plots occupying at least half grid [1]
   plots all correct to ½ square [1]
   well judged line [1]
   thin line, 5 neat plots [1]

   (d) statement NO and not through origin/
   inverse/negative gradient/
   x increases, T^2 decreases/ wtte [1]

   [Total: 10]

2 (a) 91 (^{o}C) [1]

   (b) t in s, both θ in ^{o}C [1]

   (c) statement B and justified by reference to readings [1]

   (d) any two from:
   same starting temperature/temperature of hot water
   constant room temperature/keep away from draughts/out of direct sunlight
   same time intervals [2]

   [Total: 5]

3 (a)–(c)
   table:
   V, A, Ω [1]
   V 1.8 [1]
   I 0.25 [1]
   R values 7.20, 3.46(3.5) [1]
   consistent significant figures for R (2 or more) [1]

   (d) y 0.48, 0.49, 0.5 (ecf) [1]
   2/3 significant figures and no unit [1]

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    (e) (i) correct symbols and circuit (ignore power source symbol)   [1]

       (ii) voltmeter position correct   [1]

      (iii) control current/voltage/resistance/speed of motor   [1]

                                                                              [Total: 10]

4   **(a)** f 14.95 $\pm$ 0.05 (cm)   [1]
           unit to match number   [1]

    (b) more than one value shown   [1]
           d 6.5 $\pm$ 0.1   [1]

    (c) t 0.85 $\pm$ 0.05 (cm)   [1]
           d and t both with correct unit   [1]

    (d) diagram showing blocks correctly placed   [1]
           <u>rule</u> shown correctly touching both blocks   [1]

    (e) f 10.9 – 13.1 (cm) (or 109 – 131 (mm))   [1]
           no, too far out to be explained by experimental inaccuracy (wtte)   [1]

                                                                              [Total: 10]

5   **(a)** lens between object and screen (<u>not</u> mirror)   [1]
           lens at least 2 cm from object and screen   [1]
           metre rule on bench or clamped   [1]

    (b) any two from:
           use of darkened room/brighter object
           slowly moving lens back and forth to obtain good image
           avoid parallax, action given
           lining up object and lens
           object and lens at same height from bench/object on principal axis
           repeats
           screen/lens perpendicular to bench
           mark centre of lens position on block   [2]

                                                                              [Total: 5]