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CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0625 PHYSICS

0625/52 Paper 5 (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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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1 **(a) – (d)** table:
two t values
two correct T values
both T values to 2 significant figures, or both to 3 significant figures, or both to 4 significant figures [1]
first t value 20 s – 24 s [1]

(e) statement matches results (expect NO) [1]
justification using idea of within or beyond limits of experimental accuracy [1]

(f) straight line [1]
through the origin [1]

(g) t value similar to first row of Table 1.1 Δt 1 s or less [1]

(h) has no effect
do not accept approximately the same [1]

[Total: 10]

2 **(a)** **(i)** sensible value of θ_1 [1]

(ii) θ_2 value lower than θ_1 [1]

(iii) $(\theta_1 - \theta_2)$ correct; unit °C at least once; not contradicted [1]

(b) new values all present; greater temperature difference than **(a)** [1]

(c) new values all present [1]
sensible and similar temperatures for θ_5 and θ_6 [1]
temperature difference in **(vi)** less than in **(vii)** [1]

(d) order matches results [1]

(e) any one from:
room temperature or other environmental condition
initial (hot) water / starting temperature
volume / mass / amount / level of (hot) water
same type / thickness / material / size / volume of beaker
time delays during operations [1]

(f) same time of cooling for each experiment [1]

[Total: 10]

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3 **(a)** I to at least 2 d.p. and < 1 A; unit A

(b) table:
x values 0.200, 0.350, 0.500, 0.650, 0.800 [1]
all V to at least 1 d.p. and < 3 V [1]
R values correct [1]

(c) graph:
axes correctly labelled, right way around [1]
suitable scales [1]
all plots correct to ½ small square [1]
good line judgement, thin continuous line, neat plots [1]

(d) correct value to half a square – must see evidence on graph paper [1]
condone no/incorrect unit

(e) sensible value from candidate's results [1]

[Total: 10]

4 **(a)** **(i)** v = 58 – 62 (cm) [1]

(iii) (iv) calculations correct [1]

(v) f_1 correct 2 or 3 significant figures AND unit [1]

(b) (ii) – **(v)** sensible new set of readings and results, with v within 2 cm of previous u (20.0 ± 2.0 cm) [1]

(vi) f_1 and f_2 within 4 cm of each other [1]

(c) statement matches results (expect YES) [1]
justification in terms of within or beyond limits of experimental accuracy [1]

(d) any two from:
use of darkened room / brighter lamp / no other lights
mark position of centre of lens on holder
place metre rule on bench (or clamp in position)
ensure object and (centre of) lens are same height (from the bench)
lens / object / screen, vertical or perpendicular (to bench)
repeat (and average)
move the lens slowly when focusing o.w.t.t.e. [2]

(e) image drawn inverted [1]

[Total: 10]