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Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0625 PHYSICS

0625/51 Paper 5 (Practical), maximum raw mark 40

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1 **(a)** h, d_T and d_B, recorded in cm and sensible values [1]
$h > d_T > d_B$ and d_A correct [1]
V correctly calculated [1]
unit cm^3 [1]

(b) **(i)** use of at least two values for circumference C [1]
correct value for C and $3 \times d_A \pm 10\%$ [1]
2 or 3 significant figures [1]

(ii) diagram showing measurement half way up,
or at top and bottom
or a series of measurements all the way up [1]

(c) **(i)** V_W between 140 cm^3 and 300 cm^3 [1]

(ii) sensible explanation
e.g. V_w: lots of measurements to obtain V leads to greater inaccuracy [1]

[Total: 10]

2 **(a)** sensible value for θ_R (°C) [1]

(b)–(d) table:
s, °C, °C [1]
correct t values 0, 30, 60, 90, 120, 150 [1]
temperatures decreasing in both columns [1]
final temperature difference less than initial temperature difference in both columns [1]
evidence of temperatures to precision of at least 1°C [1]

(e) statement to match results and justified by reference to results [1]
reference to same time [1]

(f) lid/cover/smaller cross-sectional area [1]

(g) any one from:
room temperature (or equivalent environmental condition)
initial water temperature
volume of water
same/dry insulation [1]

[Total: 10]

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3 **(a)** *V* to at least 1 d.p. and < 3 V and increasing [1]
I to at least 2 d.p. and < 1 A and constant to within 10% [1]
R calculated correctly [1]

(b) graph:
axes correctly labelled and correct way round [1]
suitable scales, with plots using at least half of grid [1]
all plots correct to ½ small square [1]
good line judgement, thin, continuous line [1]

(c) statement to match results [1]
justified by reference to straight line, through the origin [1]

(d) additional readings with l values above 50 cm [1]

[Total: 10]

4 **(a)(i)(ii)** *v* sensible value in cm (55–65) [1]
h sensible value (> 3 cm and < 6 cm) in cm [1]

(iii) image drawn inverted [1]

(iv) *x* value 1.2–1.8 cm [1]

(b) **(i)** *h*/*x* and *v*/*u* correct, both with <u>no</u> unit [1]

(ii) same within 10% [1]

(c) statement to match results (expect yes) [1]
justified by reference to results [1]

(d) any two from:
use of darkened room/brighter lamp
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)
repeats and average
move lens slowly/back and forth (to find sharpest image)
screen and lens and object all perpendicular to bench [2]

[Total: 10]

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