CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0625 PHYSICS

0625/51 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) (i) l_0, recorded in mm [1]

(ii) workable length clearly shown on Fig. 1.1 (or Fig. 1.2) [1]

(iv), (v) table:
correct *F* values used and increasing l values (>l_0) [1]
e values correct [1]

(b) graph:
axes correctly labelled [1]
suitable scales [1]
all plots correct to ½ small square [1]
good line judgement AND thin, continuous line [1]

(c) triangle method used and shown [1]
using at least half of candidate's line [1]

[Total: 10]

2 (a) (i) sensible value for θ_H [1]

(a)–(d) table:
s, °C, °C [1]
correct *t* values 30, 60, 90, 120, 150, 180 [1]
temperatures decreasing [1]
evidence of temperatures to precision of at least 1°C [1]
position B, greater decrease in temperature [1]

(c) sensible new value for θ_H (lower than first value) [1]

(e) one from:
viewing thermometer at right angles
reference to being ready on time [1]

(f) any two from:
room temperature
starting temperature
distance of thermometer bulb from water surface
orientation of thermometer
draughts [2]

[Total: 10]

3 **(a)** all V to at least 1 d.p. and < 3 V [1]
I to at least 2 d.p. and < 1 A [1]
V in V and I in A (at least once, not contradicted) [1]
P in W (at least once, not contradicted) [1]
P values correct [1]
$P_T = P_1 + P_2 + P_3 \pm 10\%$ [1]

(b) statement matches results (expect YES) and justification in terms of within or beyond limits of experimental accuracy o.w.t.t.e [1]

(c) **(i)** diagram:
lamps in parallel and variable resistor in series with power supply, correct symbols for variable resistor, lamps, voltmeter [1]
<u>one</u> voltmeter, correctly positioned [1]

(ii) vary current (or p.d.) [1]

[Total: 10]

4 **(a)** **(i)** v = 28 – 32 (cm) [1]

(ii) **(iii)** calculations correct [1]

(iv) f correct [1]

(b) v = 22 – 26 (cm) [1]
f values within 4 cm of each other [1]

(c) **(i)** Sensible range up to 2 cm around a value approximately 24 cm [1]

(ii) f_{AV} given to 2 or 3 significant figures and correct unit [1]
f_{AV} = 13 – 17 cm [1]

(iii) 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 lens are same height from the bench
lens / object / screen perpendicular to bench
use of repeats [2]

[Total: 10]