UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers

0625 PHYSICS

0625/53 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 must be read in conjunction with the question papers and the report on the examination.

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1 **(a)** Table:
cm, N [1]
Correct *d* values 70.0, 60.0, 50.0, 40.0, 30.0, 20.0, 10.0 [1]
F values all less than 4 N [1]
F values decreasing [1]
F values all to at least 0.2 N [1]

(b) **(i)** *d* against *F* (or *F* against *d*) [1]

(ii) Straight line [1]
Through origin [1]

(c) Would change forcemeter reading/change mass on rule/disturb balance/wtte [1]

(d) Check distance from bench is the same at two points/
Line up by eye with windowsill (or suitable horizontal reference)/
Suitable use of set-square [1]

[Total: 10]

2 **(a)** Sensible room temperature value in °C [1]

(b) Correct times 0, 30, 60, 90, 120, 150 [1]
Temperatures falling [1]

(c) Graph:
Axes correctly labelled [1]
Suitable scales [1]
All plots correct to ½ small square [1]
Good line judgement [1]
Thin, continuous line [1]

(d) Two from:
Room temperature
Draughts
Initial water temperature [2]

[Total: 10]

3 **(a)** V_1 to at least 1 d.p. and < 3V and I_1 to at least 2 d.p. and < 2A [1]
R_P and $4R_P$ values correct [1]

(b) V_2 and I_2 present with $I_2 < I_1$ [1]
$R_S = 4\ R_P \pm 10\%$ [1]

(c) Correct statement (from candidate's work, expect Yes) with matching justification (idea of within or beyond experimental accuracy) [1]

(d) **(i)** Circuit:
Correct symbols for ammeter, voltmeter and lamp [1]
Correct series circuit [1]

(ii) V_3 and I_3 present with L_S to 2 or 3 significant figures [1]

(e) Units V, A and Ω [1]

(f) Filament glows/lamp gets hot [1]

[Total: 10]

4 Trace:
Normal at 90° in correct position [1]
Angle of incidence 20° and N at 4 cm [1]
All lines present and neat [1]
First emergent ray correct direction [1]
First P_3P_4 distance › 5.0 cm [1]

(c) *a* value correct to ± 1 mm [1]

(i) *b* value correct to ± 1 mm [1]

(j) *n* value correct (ecf allowed) [1]
to 2 or 3 significant figures and no unit [1]

(k) *a* and *b* present, both *n* values 1.4–1.6 [1]

[Total: 10]