CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 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.

Cambridge will not enter into discussions about these mark schemes.

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1 **(a)** table:
correct *d* values 5.(0), 10.(0)
x and *y* values present , first $(x + y) < 46$, second < 41
all *x* and *y* values to nearest mm [ ]

(b) **(i)** *M* values both correct – penalise incorrect rounding, 3 or 4 sig. figs. only [1]

(ii) g / grams seen at least once [1]

(iii) correct average
(ignore sig. figs., but rounding must be correct) [1]

(c) *M* values same to within 5 g [1]

(d) any two from:
centre of mass of rule not at 50.0 cm / non-uniform rule
mass X not uniform / of varying density
difficulty in obtaining balance (o.w.t.t.e.) / slips on pivot / mass X not exactly 100 g / pan has mass [2]

(e) one from:
mark line through centre of the mass
use position of edges of mass on rule [1]

[Total: 10]

2 **(a)** sensible value of θ_C (< 40 (°C)) [1]

(b) decreasing θ values (allow one pair of identical values) [1]
evidence of θ to at least nearest 1 °C [1]

(c) θ_H value sensible (> 60 °C), ignore unit [1]

(d) **(i)** θ_1 lower than θ_H [1]

(ii) θ_2 lower than θ_1 and correct unit seen once in **(a)** – **(d)** [1]

(e) estimate reasonable fit with readings (must use table readings $\Delta\theta$, or use θ_1 or θ_2) [1]
estimate given using sensible method [1]

(f) two from:
room temperature / other environmental conditions
initial hot water temperature
initial cold water temperature
amount/mass/volume of hot water
time delay on adding cold water / same time for cooling [2]

[Total: 10]

3 **(a) – (d)** table:
h values present and in cm [1]
1/*h* values correct [1]

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

(f) triangle method used and shown [1]
using at least half of line [1]

(g) *f* = 14 – 16 (cm) [1]
f to 2 or 3 significant figures with unit [1]

[Total: 10]

4 **(a)** **(i)** V_1 to at least 1 d.p. and < 1V [1]
I to at least 2 d.p. and < 1A [1]

(ii) correct calculation of R_1 [1]

(ii) (iv) V_2 and V_3 both < 1V [1]

(v) correct calculation and unit seen in **(a)** [1]

(b) **(i)** correct symbols for lamp, voltmeter [1]

correct parallel circuit (including voltmeter) [1]

(ii) (iii) (iv) V_P and I_T recorded, $R_P < R_1$ [1]

(c) statement matches results and idea of within/beyond limits of experimental accuracy / too far apart / too close together
ù 10 % no, < 10 % yes [1]

(d) brighter [1]

[Total: 10]