CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 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.

Cambridge is publishing the mark schemes for the October/November 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

1 **(a)** l value 45 – 55 cm / 450 – 550 mm unit required

(b) Use of fiducial mark/blocks/protractor/set square
Move ruler closer to bob/lower bob [1]
(Can score the mark from a well-drawn diagram)

(c) Table: cm, s, s [1]
Five t values (for 10, not 9 swings) (t_{10} = 14.2 s) [1]
t values all similar (± 0.2 s) [1]
T values correct [1]
T values consistent 2, 3 or 4 significant figures [1]

(d) Description: little or no effect (owtte) allow ecf from **1(c)** [1]
Justification: T values very similar (owtte) [1]

(e) Any one from:
Reduces human reaction error
Gives a more accurate value of T
T is too small/oscillations are too quick
Gives an average value (of T) [1]

[Total: 10]

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

(b) Sensible hot water temperature θ_0 (between 60 and 100) [1]
$\theta_1 < \theta_0$ and temperatures in °C at least once, not contradicted [1]
θ_A and θ_H correct calculations [1]

(c) $\theta_2 < \theta_1$, $\theta_3 < \theta_2$ [1]
$\theta_W < \theta_B$ [1]

(d) Ratios calculated [1]
Ratios close (owtte) or ratios too different (owtte) [1]

(e) Any two from:
Room temperature/ draughts/humidity/air conditioning
Initial (water) temperature (cold or hot)
Amount of stirring
Time interval
Mass/volume/amount of water/water level
Size/surface area/shape/material/thickness of beaker [2]

[Total: 10]

3 **(a)** I_S to at least 2 decimal points and ⩽ 1A
V_S to at least 1 decimal point and 1 to 2.5 V
R_S value correct

(b) V_P and I_1 present [1]
I_2 and $I_3 < I_1$ [1]
$I_C = I_1$ (± 10%) [1]
Units A and V both at least once and not contradicted [1]
R_P with unit [1]

(c) Circuit: correct symbol for variable resistor (not potential divider symbol) [1]
Variable resistor in a correct position [1]

[Total: 10]

4 **(a)** and **(b)** Table: Five *v* values present [1]
Correct *d* values [1]

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

(d) Triangle method used and shown [1]
Using at least half of line [1]

(e) *f* = 14 – 16 cm (accept numbers rounding to 14/16) [1]
2 or 3 significant figures and unit [1]

[Total: 10]