UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2010 question paper for the guidance of teachers

0625 PHYSICS

0625/62 Paper 6 (Alternative to Practical), maximum raw mark 40

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1 **(a)** *a* and *b* correct 2.3cm, 2.1cm [1]

(b) **(i)** and **(ii)** *x* and *y* correct (10*a* and 10*b*)/(23cm, 21cm) [1]

(iii) *m* correct arithmetic, in g (110/109.5(2)(g)) [1]

(c) **(i)** and **(ii)** at least two values given for *w* and *t* [1]
more than two values given for *w* or *t* [1]
correct values for *w* and *t* (2.75 – 2.85cm, 0.4cm) [1]

(iii) *V* calculation correct (110 – 114(cm^3)) or ecf [1]

(iv) density to 2 or 3 significant figures (0.960 – 1.00) or ecf [1]
unit g/cm^3 [1]

(d) centre of mass at 50cm mark/midpoint/middle (wtte) [1]

[Total: 10]

2 **(a)** *t* in s, *θ* in °C seen in BOTH
(symbols or words (sec allowed but NOT degrees/centigrade) [1]

(b) 19 (°C) [1]

(c) rate of heating greater (wtte) (can be included as part of justification) [1]
comparison given of changes in temperature with correct numbers [1]

(d) any two from:
same (starting) temperature (wtte)
constant room temperature/draughts (wtte)/environment/place
carry out in same time intervals/duration/allow 'time' alone
same thermometer (wtte)

NOT volume of water/location of thermometer/beaker/'temperature' alone
if > 2 responses, -1 for each additional incorrect (ignore 'neutrals') [2]

[Total: 6]

3 **(a)** 2 – 2.1 (V) [1]

(b) **(i)** *R* in Ω, *V* in V (symbols or words) [1]

(ii) 10.1 [1]

(c) graph:
axes labelled and scales suitable (origin included) [1]
all plots correct to nearest ½ small square (must be visible) [2]
(-1 for first incorrect plot, -2 for second)
well judged best fit line/curve
(allow 3 good plots on line with one anomaly) [1]
thin (solid) line/neat plots to <1/2 square [1]

(d) method clearly shown on graph
(extension follows trend of line/curve, can be dotted)
(contradictory calculation negates mark) [1]
V correct to ½ small square (ignore unit) expect 1.6 V approx [1]
(allow candidate value for a 'reasonable' attempt at a line
but not if clearly wrong trend or forced – e.g. to 2 or 0)

[Total: 10]

4 **(a)** **(i)** *m* value correct 1.8/1.84 (2/3 sf) [1]
no unit [1]

(ii) size = 2.9 – 3.1 cm high
3.9 – 4.1 base
(diagonal from RH top 48 – 52mm) [1]
rectangle shape(by eye) with wire (seen in any rotation) [1]
inverted [1]

(b) placed on bench, related to vertical line on block
OR clamped immediately above lens
(either seen on diagram or in narrative) [1]

(c) any two of:
use of darkened room/bright light (wtte)
moving lens back and forth to spot best image/move lens slowly
marking position of centre of lens on block
object & lens same height/all perpendicular to bench/all straight (parallax) if explained
(allow 'look perpendicularly' but NOT 'eye level')
repeats/take averages [2]

[Total 8]

5 **(a)** three from:
mass/amount/volume/level of salt
implication of salt particle size (e.g. 'same type of salt')
mass/volume/amount/level of water
size/shape of beaker
amount/rate of stirring
NOT ref to temperature/room temperature/type of thermometer [3]

(b) three from:
clock : time
thermometer : temperature
balance : mass (NOT weight)
measuring cylinder : volume
NOT unit without quantity
(but ignore incorrect unit with correct quantity) [3]

[Total: 6]