CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0625 PHYSICS

0625/52 Paper 5 (Practical Test), 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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International Examinations

1 (a) (i) (ii) l and x recorded in cm, with l between 15 and 18 cm and x between 13 and 17 cm [1]

(iii) correct calculation of y [1]

(b) evidence of at least three turns (accept from a sketch) [1]

working / method shown [1]

c between 2 and 3 cm and to nearest 0.1 cm [1]

(c) any one from:
- stretching of string
- thickness of string
- thickness of mark
- gaps between turns
- winding of turns at an angle [1]

(d) correct calculation of V to 2 or 3 significant figures (penalise rounding errors) [1]

cm^3 [1]

(e) suitable answer < 1 (cm^3) (expect estimate to nearest 0.1 cm^3) [1]

sensible reasoning / working / method which takes account of sharpened shape and length [1]

[Total: 10]

2 (a) correct t values 30, 60, 90, 120, 150 [1]

temperatures decreasing (accept 1 pair of identical readings) [1]

(b) axes correctly labelled with quantity and unit [1]

suitable scales on both axes, occupying more than half the grid [1]

all plots correct to ½ small square [1]

good line judgement [1]

thin, continuous line and neat plots (penalise large 'blobs') [1]

(c) (i) statement to match results [1]

(ii) statement to match graph line [1]

(d) clear description or diagram to show one from:
- perpendicular line of sight
- reading to bottom of meniscus [1]

[Total: 10]

3 **(a)** **(i)** V to at least 1 d.p. and < 3 V [1]

I to at least 2 d.p. and < 1 A [1]

(ii) R calculated correctly (penalise incorrect rounding) [1]

(b) V and I recorded with I less than in **(a)** [1]

(c) **(i)** V in V, I in A, R in Ω in **(a)**, **(b)** or **(c)** at least once, not contradicted [1]

(ii) R to 2 or 3 significant figures [1]

(d) R constant (provided it matches results) no e.c.f. [1]

(e) clear description or diagram showing triangle method with large triangle **or** taking two co-ordinates far apart on line [1]

how to calculate gradient e.g. equation or rise / run, etc. [1]

(f) standard symbol for variable resistor (rectangle with strike-through arrow) [1]

[Total: 10]

4 **(b)** x sensible value (20 ± 2) in cm [1]

h sensible value (>1.5 cm) in cm [1]

(c) y recorded and $x + y$ in range 75.0 cm to 85.0 cm [1]

(d) d and d^2 correct (penalise rounding errors for d^2) [1]

(e) f to 2 or 3 significant figures and correct unit [1]

f value 14 cm – 16 cm [1]

(f) any two from:

- use of darkened room / brighter lamp / no other lights
- mark position of centre of lens on holder
- place metre rule on bench / clamp in position
- ensure object and (centre of) lens are same height (from the bench)
- repeat (and average)
- move the lens slowly / to and fro
- lens, object and screen all vertical / perpendicular to bench [max 2]

(g) image drawn inverted [1]

(h) distance between object and screen / *D* / change position of screen [1]

[Total: 10]