CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0625 PHYSICS

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

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1 (a) (i) l in range 17.1–17.2 (cm) [1]

(ii) x in range 15.5–15.6 (cm) **and** correct calculation of y (e.c.f. incorrect l) [1]

(b) use of at least 3 turns [1]

(mark string and) measure distance (between marks) **and** divide by number of turns [1]

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

(ii) V = 7.1(0)–7.2(0) $\underline{\text{cm}^3}$ e.c.f. **(a)(ii)** [1]

(iii) V_E = 0.2–0.6 (cm^3) [1]
(expect estimate to nearest 0.1 cm^3)

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

[Total: 8]

2 (a) (i) 88 (°C) [1]

(ii) s, °C [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, not through all points [1]

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

(c) (i) statement to match candidate's graph line (expect curve) [1]

(ii) statement to match candidate's graph line (expect (rate) decreases) [1]

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

[Total: 10]

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3 **(a)** **(i)** 2.1 (V) [1]

0.45 (A) [1]

(ii) R = 4.7 accept 4.67 (Ω) e.c.f. **(a)(i)** [1]

all units correct, V, A, Ω, symbols or words [1]

(b) (current) decreases [1]

(c) correct symbol for variable resistor (rectangle with strike-through arrow) [1]

(d) 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]

[Total: 8]

4 **(a)** **(i)** x and y clearly and correctly labelled to centre of lens [1]

(ii) d = 40.9 (cm) no mark

(iii) d^2 = 1673 (cm^2) no mark

(iv) f = 14.8 / 14.77 correct answer only [1]
ignore sig. figs, but penalise incorrect rounding

cm **and** 2 or 3 sig. figs. [1]

(b) 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]

(c) **(i)** **two points in either order:**
one magnified, other diminished owtte [1]

one brighter than the other [1]

(ii) both inverted / both real [1]
accept same way up / same shape

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

[Total: 9]

5 (a) (i) 1 m–2.5 m [1]

(ii) 10 cm–1 m but *h* must be less than $l/2$ [1]

(b) any three from:

- making marks / lines on track for start and finish
- repeats / find average time
- constant starting positions
- not pushing car
- time from same point on car
- use light gates / data logger / automatic timer for timing
- method for avoiding parallax error when judging finishing point / stand level with finish [max 3]

[Total: 5]

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