CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0625 PHYSICS

0625/51 Paper 5 (Practical Test), maximum raw mark 40

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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1 **(a)** l_0 recorded in mm [1]

(b)(i)(ii) l recorded and > l_0, e correctly calculated [1]

(iii) correct calculation of *k* with matching unit [1]

(c) **(i)** *t* recorded with sensible value [1]

(ii) *T* correct and to 2 or 3 significant figures [1]

(d) *t* and *T* both recorded and ratio T_{500}/T_{300} in range 1.17 – 1.43 [1]

unit s in **(c)** and **(d)** at least once and not contradicted [1]

(e) statement matches results (expect NO) [1]

justified with reference to results, must include idea of too big a difference (to be due to experimental inaccuracy), ecf [1]

(f) clear diagram or explanation that indicates:
perpendicular viewing of spring or scale
OR rule touching / very close to spring
OR appropriate use of horizontal pointer/set square/rule, etc. [1]

[Total: 10]

2 **(a)** sensible value for θ_H [1]

table:
s, °C, °C [1]

correct *t* values 30, 60, 90, 120, 150, 180 [1]

temperatures decreasing [1]

evidence of temperatures to 1 °C or better [1]

with insulation, smaller decrease in temperature [1]

(c) sensible new value for θ_H [1]

(e) statement to match results [1]

justified by reference to results, giving numbers referring to temperature drops [1]

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(f) any one from:
- room temperature (or suitable reference to draughts or similar)
- starting temperature
- density of packing/amount of cotton wool
- size of beaker [1]

[Total: 10]

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

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

(ii) *R* calculated correctly [1]

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

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

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

(d) *R* increases, ecf [1]

(e) one from:
- exact placement of S
- width of S
- battery running down / voltage changed
- wire / lamp getting hot (and so resistance changing)
- lamp remaining hot [1]

(f) increases [1]

V increases more quickly than *I* (accept greater rate)
or *V* increases proportionately more than *I*
or doubling *V* causes *I* to increase by less than double
allow gradient is increasing [1]

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4 **trace:**

normal at 90^{o} in correct position [1]

angle of incidence $30^{o} \pm 2^{o}$ and **AB** 8.0 cm ± 2 mm [1]

all lines present and neat and in approximately correct positions [1]

θ values correctly measured from ray-trace to $\pm 2^{o}$ [1]

P_1P_2 distance ⩾ 5.0 cm [1]

table:

first three α values 30°, 50°, 70° all to ± 5° (no ecf) [1]

graph:

axes correctly labelled and correct way round [1]

suitable scales [1]

all plots correct to ½ small square [1]

good line judgement, single, thin, continuous line [1]

[Total: 10]

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