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

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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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]

(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]

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]