UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

0625 PHYSICS

0625/61 Paper 6 (Alternative to Practical), maximum raw mark 40

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1 **(a)** **(i)** l = 29 (mm) and l = 31 (mm) (allow 2.9 cm, 3.1 cm) [1]
e_A = 14 (mm) and e_B = 15 (mm) (ecf) (ignore minus signs) [1]

(b) **(i)** both l correct to (21.5 – 22) and 24 [1]

(ii) (6.5 – 7) and 8 (ecf) (ignore minus signs) [1]

(iii) e_{av} = 7.5 (c.a.o.) [1]

(c) statement matches readings (expect YES) (ecf NO) [1]
justification matches statement and by reference to results
(expect within limits of experimental accuracy, wtte) (too different, wtte) [1]

(d) any one of:
avoidance of parallax error explained
use of horizontal aid
measuring to same point each time
repeats
wait for springs to stop moving [1]

[Total: 8]

2 **(a)** **(i)** T_1 correct 18 [1]

(ii) T_2 correct 4 [1]
unit °C (either position and not contradicted) [1]

(b) graph:
y-axis labelled [1]
plots occupying at least half of grid on suitable scale [1]
all plots correct to ½ square [1]
well judged single, smooth curve line, not 'point-to-point' [1]
thin line [1]

(c) **(i)** $T_2 < T_1$ (wtte) [1]

(ii) decreasing gradient (wtte) [1]

[Total: 10]

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3 **(a)** correct symbol [1]
correct position [1]

(b) table:
V / l values correct 8.35, 3.58, 2.08, 1.39, 1.00 [1]
consistent 2 or 3 significant figures [1]
unit V/m [1]

(c) statement matches readings (expect NO) [1]
justification matches statement and by reference to results
V / l not constant, as l increases V decreases [1]

(d) any one of:
check for zero error
avoidance of parallax error explained
switch off between readings
repeats [1]

[Total: 8]

4 **(a)** **(i)** pins at least 5 cm apart [1]

(ii) i = 30 [1]

(iii) r_1 = 31 [1]

(b) **(i)** & **(ii)** both lines correct area [1]

(iii)–(v) r_2 correct to $\pm$ 1° with unit [1]
difference = 1 or –1 (c.a.o.) [1]

(c) statement matches result (expect YES) (ecf NO) [1]
justification matches statement and by reference to result
(expect within limits of experimental accuracy, wtte) (too different, wtte) [1]

[Total: 8]

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5 **(a)** column 1: d, m (or in words) [1]
columns 2 and 3: t, T (or in words) [1]
columns 2 and 3: s, s (or in words) [1]

(b) accuracy/reducing uncertainty/sensible comment on reaction time [1]

(c) **(i)** at least <u>three</u> correct values entered in table
1.66, 1.52, 1.40, 1.28, 1.17 (at least 2 significant figures) c.a.o [1]

(ii) statement matches result (expect NO) <u>AND</u>
justification matches statement and by reference to result
(expect decreasing, not equal, not constant, different, changing, wtte)
allow ecf from **(i)** [1]

[Total: 6]

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