

**MARK SCHEME for the May/June 2010 question paper**  
**for the guidance of teachers**

**0625 PHYSICS**

**0625/51**

Paper 51 (Practical), 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.

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- 1 (a)  $l_A$  value 20 – 100 mm [1]  
 $l$  value greater than  $l_A$  and correct calculation of  $e_A$  [1]  
clear, suitable marks (must indicate a reproducible length) [1]
- (b)  $l_B$  value 20 – 100 mm [1]  
 $l$  and  $e_B$  recorded [1]
- (c) values of  $l$  recorded and correct  $e$  values [1]  
 $e_{av}$  correct method [1]
- (d) statement matches readings [1]  
justification matches statement and by reference to results [1]
- (e) 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: 10]**
- 2 (a) temperatures decreasing [1]  
evidence of temperatures to 1°C [1]
- (b)  $T_1$  correct [1]  
 $T_2$  correct [1]  
unit °C [1]
- (c) graph:  
y-axis labelled [1]  
plots occupying at least half of grid [1]  
all plots correct to ½ square [1]  
well judged line [1]  
thin line [1]
- [Total: 10]**

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- 3 (a) correct symbol [1]  
correct position [1]
- (b) table: [1]  
correct  $l$  values [1]  
 $V$  values all  $< 2.5$  V and to at least 1 d.p. [1]  
 $V$  values decreasing [1]  
 $V/l$  values correct [1]  
unit V/m [1]
- (c) statement matches readings (Expect NO) [1]  
justification matches statement and by reference to results [1]  
i.e.  $V/l$  not constant,  $V$  increases as  $l$  decreases or wtte.
- (d) any one of:  
check for zero error  
avoidance of parallax error when reading  $l$   
switch off between readings  
repeats

[Total: 10]

- 4 ray trace:  
all lines present, thin, neat and in correct areas [1]  
normal drawn [1]  
GJ at  $30^\circ$  to normal (by eye) [1]  
second mirror position  $10^\circ$  from first [1]  
 $P_1P_2$  distance at least 5 cm [1]
- (i)  $r_1$  correct to  $\pm 2^\circ$  [1]
- (n)  $r_2$  correct to  $\pm 2^\circ$  [1]  
 $\alpha$  and  $(2\theta - \alpha)$  correct (ignore – sign) [1]
- (o) statement matches result (Expect YES) [1]  
justification matches statement and by reference to result [1]

[Total: 10]