

## **MARK SCHEME for the October/November 2012 series**

### **0625 PHYSICS**

**0625/51**

Paper 5 (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.

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

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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- 1 (a)  $d_0$  less than 900 mm and sensible [1]  
Diagram correct [1]  
Correct  $L$  values (1 – 5),  $d$  values present and decreasing [1]  
Correct  $e$  values [1]
- (b) Graph: [1]  
Axes correctly labelled with quantity and unit and correct way around [1]  
Suitable scales [1]  
All plots correct to  $\frac{1}{2}$  small square [1]  
Good line judgement; single, thin, continuous line [1]
- (c) Triangle method used and shown on the graph [1]  
Using at least half of line [1]
- [Total: 10]
- 2 (a) sensible value for  $\theta_R$  [1]
- (b) to (d) Table: [1]  
 $s, ^\circ\text{C}, ^\circ\text{C}$  [1]  
Times 0, 30, 60, 90, 120, 150 [1]  
Both sets of temperatures present and decreasing [1]  
0 – 30 s decrease greater than 120 – 150 s decrease [1]  
Evidence of temperatures to  $1^\circ\text{C}$  or better [1]
- (c) Statement matches readings [1]  
Justified with reference to numbers in table [1]
- (e) Any two from: [2]  
Volumes of water  
Room temperature/draughts  
Same beaker  
Initial water temperature
- [Total: 10]
- 3 (a) Correct symbols for ammeter, voltmeter and lamps [1]  
Ammeter and voltmeter in correct positions [1]  
Correct parallel circuit [1]
- (b)  $I$  to at least 2 decimal places [1]  
All voltages to at least 1 decimal place [1]  
Correct calculation of  $R_A$  and units  $V, A, \Omega$  at least once [1]

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- (c) (i) All  $V$  values present [1]  
(ii)  $V_B$  1 – 2.5V [1]
- (d) Statement matches readings [1]  
Justified with idea of experimental inaccuracy [1]

[Total: 10]

- 4 Trace:  
Normal at  $90^\circ$  in correct position (by eye) [1]  
Angle of incidence  $30^\circ \pm 2^\circ$  [1]  
All lines present and neat [1]  
First  $P_1P_2$  distance  $\geq 5.0$  cm [1]  
All pin separations  $\geq 5.0$  cm [1]
- (h)  $r$  value correct to  $\pm 2^\circ$  unit required [1]
- (i)  $i/r$  value correct [1]
- (j)  $r$  value correct to  $\pm 2^\circ$  unit required [1]  
both  $i/r$  values to 2 or 3 significant figures and no unit [1]
- (k) Idea of within (or beyond) limits of experimental accuracy [1]

[Total: 10]