

## **MARK SCHEME for the May/June 2013 series**

### **0625 PHYSICS**

**0625/61**

Paper 6 (Alternative to 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 May/June 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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- 1 (a) 9.7, 5.7, 2.0 (accept 2) or 97, 57, 20 [1]  
all given to correct unit [1]  
line AC drawn correctly, corner to corner [1]  
 $\alpha = 18 - 20^\circ$  [1]
- (b) number from 3 to 20 with no unit [1]
- (c) correct statement for results (expect Yes) [1]  
idea of within (or beyond) experimental accuracy [1]

[Total: 7]

- 2 (a)  $\theta_R = 23^\circ\text{C}$  [1]
- (b) table: [1]  
 $d$  values 11.9, 11.3, 10.8, 10.4, 10.2, 10.0, 9.9 [1]  
all  $d$  values to nearest mm [1]  
 $s$ ,  $^\circ\text{C}$ , cm or mm [1]
- (c) (i) does not go through the origin [1]  
(ii)  $d$  not measured from  $0^\circ\text{C}$  mark (o.w.t.t.e.) [1]
- (d) any  $l$  divided by any number of divisions [1]  
 $l$  value between 89 and 119 [1]  
 $x = 0.98$  mm to  $1.00$  mm (with unit) [1]

[Total: 9]

- 3 (a) table: [1]  
 $R$  values correct 0.61, 1.82, 3.16, 4.27, 5.48 [1]  
all  $R$  values to 2 or 3 significant figures [1]  
cm, V, A,  $\Omega$  [1]
- (b) graph: [1]  
axes correctly labelled [1]  
suitable scales [1]  
all plots correct to  $\frac{1}{2}$  small square [1]  
good line judgement [1]  
single, thin, continuous line [1]
- (c) triangle method shown on graph [1]  
using at least half of line [1]  
 $G = 0.31$  to  $0.35$  2 or 3 significant figures [1]

[Total: 11]

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- 4 on ray trace:
- one line drawn accurately through P<sub>3</sub>P<sub>4</sub> or CD [1]
  - both lines in correct place, neat, thin and intersecting [1]
  - normals Y to MR and P<sub>1</sub> to MR correct [1]
  - $b = 55 - 65$  (mm) [1]
- (d) statement matches results (expect Yes) [1]
- idea of within (or beyond) experimental accuracy [1]
- (e) any one from:
- large spaces between pins
  - make sure pins are vertical
  - observe bases of pins [1]
- [Total: 7]**
- 5 (a) 40.0 or 40(cm) [1]
- (b) accuracy / reliability / check readings / spot anomaly / o.w.t.t.e. [1]
- (c) correct method used [1]
- 30 or 30.0(g) [1]
- (d) rule never quite balances, o.w.t.t.e. [1]
- take average position / nearest to balance, o.w.t.t.e. [1]
- [Total: 6]**