

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2011 question paper  
for the guidance of teachers**

**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 must be read in conjunction with the question papers and the report on the examination.

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- 1 (a) & (b) correct  $d$  values 5, 10, 15, 20, 25  
 $x$  and  $y$  values present all less than 45 cm
- (c) graph:  
 axes labelled,  $y/cm$  and  $x/cm$  [1]  
 scales suitable, using at least half of grid [1]  
 all plots correct to nearest  $\frac{1}{2}$  small square [1]  
 well-judged, continuous, thin best-fit line [1]
- (d) triangle method used and clearly shown, using at least half line [1]  
 readings from graph correct to  $\frac{1}{2}$  small square [1]
- (e)  $W$  calculation correct with unit N and to 2 or 3 significant figures (ecf) [1]  
 $W$  value between 0.7 and 1.4 [1]
- [Total: 10]**
- 2 (a)  $\theta_c$  and  $\theta_h$  sensible values [1]  
 $\theta_m$  between  $\theta_c$  and  $\theta_h$  unit  $^{\circ}C$  [1]  
 Any two from:  
 stirring  
 waiting for temperature to stabilise  
 view thermometer scale at right angles  
 swift transfer [2]
- (b)  $\theta_c$  and  $\theta_h$  sensible values,  $\theta_m$  between  $\theta_c$  and  $\theta_h$  [1]  
 correct average [1]
- (c) statement matches readings [1]  
 justified by reference to readings, to include idea of within (or beyond) limits of  
 experimental accuracy [1]
- (d) heat loss to surroundings o.w.t.t.e. [1]
- (e) any one from:  
 lagging beakers  
 swifter transfer of water  
 lid on beaker [1]  
 measure temperature in cylinder
- [Total: 10]**

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- 3 (a) all  $I$  values to 2 decimal places  
unit A at least once (and not contradicted)  
 $I_A$  and  $I_D$  both greater than  $I_B$  and  $I_C$   
 $I_A = (I_B + I_C)$  to 1 decimal place [1]
- (b)  $(I_B + I_C)$  correct [1]  
statement matches readings [1]  
justified by reference to readings [1]
- (c)  $V$  to at least 1 decimal place and  $< 2.5(V)$  [1]  
 $R$  correct, 2 or 3 significant figures and unit [1]
- (d) voltmeter symbol correct and correctly connected [1]

[Total: 10]

- 4 (a)–(f) trace:  
normal at  $90^\circ$  in correct position [1]  
all lines present and neat [1]  
**AB** correct position [1]  
first  $P_2P_3$  distance  $\geq 5.0\text{cm}$  [1]
- (h)–(j) trace:  
**M<sub>1</sub>R<sub>1</sub>** and **AC** correct [1]
- table:  
 $i$  values correct to  $2^\circ$  [1]  
 $r$  values correct to  $2^\circ$  [1]  
both  $i = r$  to  $4^\circ$  [1]
- (l) any two from:  
thickness of lines  
thickness of mirror  
thickness of protractor o.w.t.t.e.  
thickness of pins/holes [2]

[Total: 10]