

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

**MARK SCHEME for the October/November 2013 series**

<b>0625 PHYSICS</b>	
<b>0625/51</b>	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 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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- 1 (a) (i)  $l_0$ , recorded in mm
- (ii) workable length clearly shown on Fig. 1.1 (or Fig. 1.2)
- (iv), (v) table:  
 correct  $F$  values used and increasing  $l$  values ( $>l_0$ ) [1]  
 $e$  values correct [1]
- (b) graph:  
 axes correctly labelled [1]  
 suitable scales [1]  
 all plots correct to  $\frac{1}{2}$  small square [1]  
 good line judgement AND thin, continuous line [1]
- (c) triangle method used and shown [1]  
 using at least half of candidate's line [1]
- [Total: 10]**
- 2 (a) (i) sensible value for  $\theta_H$  [1]
- (a)–(d) table:  
 $s$ , °C, °C [1]  
 correct  $t$  values 30, 60, 90, 120, 150, 180 [1]  
 temperatures decreasing [1]  
 evidence of temperatures to precision of at least 1°C [1]  
 position B, greater decrease in temperature [1]
- (c) sensible new value for  $\theta_H$  (lower than first value) [1]
- (e) one from:  
 viewing thermometer at right angles  
 reference to being ready on time [1]
- (f) any two from:  
 room temperature  
 starting temperature  
 distance of thermometer bulb from water surface  
 orientation of thermometer  
 draughts [2]
- [Total: 10]**

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- 3 (a) all  $V$  to at least 1 d.p. and  $< 3\text{ V}$   
 $I$  to at least 2 d.p. and  $< 1\text{ A}$   
 $V$  in  $V$  and  $I$  in  $A$  (at least once, not contradicted)  
 $P$  in  $W$  (at least once, not contradicted) [1]  
 $P$  values correct [1]  
 $P_T = P_1 + P_2 + P_3 \pm 10\%$  [1]
- (b) statement matches results (expect YES) and justification in terms of within or beyond limits of experimental accuracy o.w.t.t.e [1]
- (c) (i) diagram:  
lamps in parallel and variable resistor in series with power supply, correct symbols for variable resistor, lamps, voltmeter [1]  
one voltmeter, correctly positioned [1]
- (ii) vary current (or p.d.) [1]
- [Total: 10]**
- 4 (a) (i)  $v = 28 - 32$  (cm) [1]
- (ii) (iii) calculations correct [1]
- (iv)  $f$  correct [1]
- (b)  $v = 22 - 26$  (cm) [1]  
 $f$  values within 4 cm of each other [1]
- (c) (i) Sensible range up to 2 cm around a value approximately 24 cm [1]
- (ii)  $f_{AV}$  given to 2 or 3 significant figures and correct unit [1]  
 $f_{AV} = 13 - 17$  cm [1]
- (iii) any two from:  
use of darkened room/brighter lamp  
mark position of centre of lens on holder  
place metre rule on bench (or clamp in position)  
ensure object and lens are same height from the bench  
lens/object/screen perpendicular to bench  
use of repeats [2]
- [Total: 10]**