

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

**MARK SCHEME for the May/June 2009 question paper**  
**for the guidance of teachers**

**0625 PHYSICS**

**0625/05**

Paper 5 (Practical), maximum raw mark 40

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- 1 (a)  $d$  value 1.5–3.5 (cm) and  $h$  value 12.0–16.0 (cm) [1]  
 diagram showing method [1]  
 correct calculation of  $V_e$  [1]
- (b) mass of tube 20–35 (g) [1]
- (c)  $V_1$  recorded and correct calculation of density [1]
- (d)  $V_1$ ,  $V_2$  and  $(V_2 - V_1)$  present,  $V_1$  150–200 and  $V_2 > V_1$  [1]  
 $m_2$  20–35 (g) (no ecf) [1]  
 volumes in  $\text{cm}^3$ , masses in g [1]
- (e)  $V_3$  present,  $\rho$  values same to within  $0.5 \text{ g/cm}^3$  [1]  
 correct unit and 2/3 sf [1]

[Total: 10]

- 2 (a)–(d) [1]  
 $t$  in s  $\theta$  in  $^\circ\text{C}$  [1]  
 $t$  values 0, 30, 60, 90, 120, 150, 180 [1]  
 Thermometer **A**, temperatures decreasing [1]  
 Thermometer **B**, temperatures decreasing [1]  
 Thermometer **B**, temperatures decreasing less rapidly [1]  
 Evidence of temperatures to  $1^\circ\text{C}$  [1]
- (e) Statement matches readings [1]  
 Justified by reference to readings [1]  
 comparison given of drops in temperature with numbers [1]
- (f) Any two from:  
 same starting temperature  
 constant room temperature  
 carry out at same time  
 same thermometer (words to that effect)  
 same thermometer positions  
 same time intervals [2]

[Total: 10]

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3 (d)  $I$  in A to 2 d.p.  $< 2 A$  [1]

(a)–(h)

Table:

correct  $x$  values (0.1, 0.3, 0.5, 0.7, 0.9) [1]

$V$  values all  $< 2.5 V$  and to at least 1 d.p. [1]

$R$  values correct [1]

(i) Graph:

Axes labelled and scales suitable [1]

All plots correct to  $\frac{1}{2}$  square [1]

Well judged line, continued to an axis [1]

(j) Statement proportional (words to that effect, including as  $x$  increases,  $R$  increases)

Justification straight line through origin [1]

(k) Clear indication of method on graph [1]

Correct value to  $\frac{1}{2}$  square [1]

**[Total: 10]**

4 (a)–(g)

Table:

correct  $u$  values 25.0 (cm), 45.0 (cm) [1]

$u$  and  $v$  in cm [1]

$v$  values 35–40 and 20–25 [1]

$f$  values consistent 3 or more significant figures [1]

$f$  in cm [1]

(h) correct average value for  $f$  [1]

2/3 significant figures [1]

average  $f$  14–16 cm [1]

(i) Any one statement (1) with matching explanation (1) from:

use of darkened room; to see image clearly (1 + 1)

slowly moving screen back and forth; to get clear image (1 + 1)

clamp rule or place on bench; to obtain accurate distance measurements (1 + 1)

avoid parallax; looking perpendicularly at rule (1 + 1)

lining up of object and lens; to obtain clear image (1 + 1)

mark centre of lens on block; to obtain accurate distance measurement (1 + 1)

ensure lens vertical; to obtain clear image (1 + 1)

object and lens same height from bench; to obtain clear image (1 + 1) [2]

**[Total: 10]**