

**MARK SCHEME for the May/June 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.

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

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- 1 (a) Lengths 21.0 cm, 14.9 cm, 25.7cm, all  $\pm 2\text{mm}$  – unit needed [1]
- (e) (i) Circles correctly placed on correct outline [1]  
Circles neat and labelled [1]
- (ii) Crosses small, neat, positions sensible (one each side) [1]
- (iii) Lines drawn accurately ( $\pm 1\text{mm}$ ) [1]  
Lines cross at same point, within 5mm [1]
- (f) a correct to  $\pm 1\text{mm}$  [1]  
Well-judged position [1]  
Line correctly drawn [1]
- (g) Viewing line directly in front of card/perpendicular to card  
Any clear explanation of how to avoid parallax/shine a light from the front/wait until card stops swinging/minimise distance between card and plumbline.

[Total: 10]

- 2 (a), (b)  
 $t$  in s,  $\theta$  in  $^{\circ}\text{C}$  [1]  
Correct times 0, 30, 60, 90, 120, 150, 180 [1]  
Temperatures falling [1]
- (c)  $T_1$  and  $T_2$  correct [1]
- (d) Graph:  
Axes, correct way around, both labelled with quantity [1]  
Scales suitable [1]  
All plots correct to  $\frac{1}{2}$  small square [1]  
Good line judgement with thin line [1]
- (e) (i) Faster rate of cooling in first 30s (owtte) – allow ecf from (c) (i) (ii) [1]  
(ii) Decreasing slope of line (owtte) [1]

[Total: 10]

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- 3 (a), (b), (c)**
- V, A,  $\Omega$  [1]  
 Both  $V$  to at least 1 d.p. and  $< 3V$  [1]  
 Both  $I$  to at least 2 d.p. and  $< 1A$  [1]  
 $R$  values correct [1]  
 $R$  values consistent 2 or 3 significant figures [1]
- (d)**  $V$  and  $I$  present [1]  
 $R_T$  correct and different from  $R_S$  [1]
- (e)** Correct statement – expect no [1]  
 Matching justification (using idea of experimental accuracy) [1]
- (f)** Filaments glow [1]

**[Total: 10]**

- 4** Trace:
- Normal at  $90^\circ$  in correct position [1]  
 All lines present and neat [1]  
**CD** correct position [1]  
**AB** correct position [1]  
 $P_2P_3$  distance  $\geq 5.0\text{cm}$  [1]
- Table:
- $i$  values correct to  $2^\circ$  [1]  
 $r$  values correct to  $2^\circ$  [1]  
 $i = r$  to  $4^\circ$  [1]
- (j)** Any two:
- Thickness of lines  
 Thickness of mirror  
 Thickness of protractor (owtte)  
 Thickness of pins [2]

**[Total: 10]**