

## **MARK SCHEME for the May/June 2007 question paper**

### **0625 PHYSICS**

**0625/05**

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.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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- 1 (b)  $\theta_1$  sensible room temp [1]
- (d)  $\theta_2$  suitable hot water temp down to 60°C [1]
- (f)  $\theta_3$  (greater than  $\theta_1$  and less than  $\theta_2$ ) [1]
- (g)  $\theta_2$  (a little less than or equal to  $\theta_2$  in (d)) [1]
- (i)  $\theta_3$  less than  $\theta_2$  in (g) and greater than  $\theta_3$  in (f) [1]
- (b) – (i) all temperatures in °C, correctly written [1]  
evidence of temperatures to 1°C [1]
- (j) (i) heat loss to surroundings [1]
- (ii) any two from:  
insulation / mat  
lid  
speedier transfer  
repeats  
wait to record maximum temperature  
stirring  
include beaker in calculation [2]
- [Total: 10]**
- 2 (a) record of  $h_0$ , sensible (25 – 100cm) with correct unit [1]
- (c) – (h) 6 sets of  $d$  and  $h$  [1]  
evidence of  $h$  to nearest mm [1]  
correct arithmetic for  $b$  [1]
- (i) Graph:  
correct axis labelled with symbol / unit [1]  
plots to nearest ½ sq (-1 each error or omission) [2]  
line, thin and best fit [1]
- (j) no  
not (a straight line) through origin (ecf)  
OR negative gradient  
OR as  $b$  increases,  $d$  decreases [1]
- (k) use of set square / protractor / spirit level / plumbline [1]
- [Total: 10]**

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- 3 (b) – (f) table complete with  $V$ ,  $I$  and  $R$  values [1]  
sensible values for  $V$  (1 – 4) and  $I$  (0.1 – 1.0) [1]  
both  $V$  to at least 1 dp [1]  
both  $I$  to at least 2 dp [1]  
correct arithmetic for  $R$  values [1]  
first  $R$  value between 3 and 5 x second value [1]  
both  $R$  to 2 sf or both to 3 sf [1]

- (g) all correct units:  $V$ ,  $A$ ,  $\Omega$  (symbol or word) [1]

- (h) fourth box [1]

- (i) second  $R$   $\frac{1}{4}$  of first (or similar wording) [1]

[Total: 10]

- 4 (a) – (g) table complete with  $x$ ,  $y$  and  $f$  values [1]  
all  $x$ ,  $y$  and  $f$  given to nearest mm [1]  
all  $x$ ,  $y$  and  $f$  in m [1]  
correct arithmetic for  $f$  [1]  
 $f$  values 140 – 160 mm [1]

- (h) correct average  $f$  [1]  
average  $f$  to 2/3 sf [1]  
correct unit for average  $f$  (m, cm, mm) [1]

- (i) precautions:  
any two from:  
use darkened area  
metre rule on bench or clamped  
object and lens same height from bench  
mark on lens holder to show position of lens centre  
lens perpendicular to light rays  
choosing mid-point between acceptable positions  
lens/screen perpendicular to bench  
avoidance of parallax error, if action and reason given [2]

[Total: 10]