

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

**0625 PHYSICS**

**0625/06**

Paper 6 (Alternative to 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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Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2007	0625	6

- 1 (a)  $\theta_1 = 23$  [1]  
unit °C correctly written [1]
- (b) 19 (°C) ecf [1]  
34 (°C) ecf [1]
- (c) (i) heat loss (to surroundings) [1]
- (ii) any two from:  
insulation / mat / foil  
lid  
speedier transfer  
repeats  
wait to record max temperature  
stirring  
include beaker in calculation [2]
- [Total: 7]**
- 2 (a) and (b) 6  $d$  values [1]  
correct values for  $d$  5, 10, 15, 20, 25, 30 [1]
- (c)  $h_0 = 100\text{mm}$  (including unit, cm/m allowed) [1]
- (e) correct values for  $b$  40, 35, 32, 28, 24, 20 (ecf) [1]
- (f) Graph:  
correct  $d$  axis labelled with symbol / unit [1]  
plots to nearest  $\frac{1}{2}$  sq (-1 each error or omission) [2]  
best fit straight line [1]  
single line, thin and best fit [1]
- (g) no  
line not through origin  
OR when  $b$  increases,  $d$  decreases  
OR negative gradient [1]
- (h) use of set square / protractor / spirit level / plumbline [1]
- [Total: 11]**

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2007	0625	6

- 3 (a) correct arithmetic for  $R$  values 7.92, 1.98 [1]  
both  $R$  to 2sf OR both to 3sf [1]  
all correct units:  $V$ ,  $A$ ,  $\Omega$  [1]
- (b) final box (ecf) [1]  
second  $R$  (or  $I$ ) about  $\frac{1}{4}$  of first [1]
- (c) lamp symbol correct [1]  
ammeter and voltmeter symbols correct [1]  
correct parallel circuit (ONE ammeter and ONE voltmeter, no extra components,  
but accept switch if present, ignore power source or lack of) [1]
- [Total: 8]**
- 4 (a) correct arithmetic for  $f$ , 0.154, 0.144 (any sf) [1]  
correct average  $f$  (0.149, ecf) [1]  
average  $f$  to 2/3 sf [1]  
correct unit for average  $f$  (m) [1]
- (b) precautions:  
any two from:  
use darkened area (wtte)  
metre rule on bench or clamped  
object and lens same height from bench  
mark on lens holder to show position of lens centre  
take more readings  
choosing mid point between acceptable positions  
parallax, action and reason  
lens/screen perpendicular to bench [2]
- (c) inverted [1]
- [Total: 7]**

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2007	0625	6

- 5 (a) weight / load / force /  $W / L / F$  [1]  
length /  $l$  [1]  
extension /  $e / x / (l - l_0)$  [1]  
units N, mm, mm [1]
- (b) any three from  
length of spring /  $l_0$   
diameter/thickness of spring  
range of loads  
length of wire  
diameter / thickness of wire  
number of coils  
coil spacing [3]  
do NOT allow 'size' or room temperature

[Total: 7]