MARK SCHEME for the May/June 2007 question paper

0625 PHYSICS

0625/06   Paper 6 (Alternative to Practical), maximum raw mark 40

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1 **(a)** θ_1 = 23 [1]
unit ^{o}C correctly written [1]

(b) 19 ($^{\circ}$C) ecf [1]
34 ($^{\circ}$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 = 100mm (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 ½ 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]

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, Ω [1]

   (b) final box (ecf)   [1]
      second R (or I) about ¼ 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]

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]