

PH3 Mark Scheme – May 2007

Additional notes:

By the nature of a practical examination, the data are the candidates own and every attempt is made not to penalise candidates unduly for poor results, especially in the sections involving their analysis. The various sections of the questions are independent. e.c.f. stands for *error carried forward*, and indicates that the results of previous (incorrect) calculation or poor measurement will be treated as correct for the current section, i.e. the mistake will only be penalised once. This does not extend to errors of principle, for example inappropriately drawing a best-fit line through the origin and subsequently stating that the intercept is zero.

Experiment	Answers / Explanatory notes	Marks Available
1. (a)	A: 72.4 - 84.9 cm ² B: 105.7 - 120.8 cm ² C: 145.3 - 162.9 cm ² D: 191.1 - 211.2 cm ² Unit (1); 2-4 s.f.(1); calculations (1)	3
(b)	Table: Titles (1) Units (1) Repeat readings (1) 1/Area correct (1) consistent s.f. (1) Clear table and all cards used. (1)	6
(c)	Graph: Plot of n against $1/A$ [either orientation] (1) Axis labels and units [e.c.f.] (1) points correctly plotted (–1 per incorrect plot) (1) line of best fit [e.c.f.] Scales – reasonable use of graph paper, no multiples of 3 (1)	5
(d)	Yes (1); straight line (1) through origin [all e.c.f.]	1
(e)	Gradient: Good sized Δ shown on graph (1) Calculations correct (1) [no readings from table] $n = \frac{\text{gradient}}{A}$ [+ c if appropriate] (1)	3
		[20]