

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0625 PHYSICS

0625/53

Paper 5 (Practical), maximum raw mark 40

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- 1 (a) h_0 in range 1.5 to 2.5 (cm) and to at least 1dp [1]
- (b)(c) h_1 values decreasing [1]
- correct S calculations and S values all > 0.8 [1]
- (d) graph:
 axes labelled with quantity and unit and in correct orientation [1]
 appropriate scales [1]
 plots correct to $\frac{1}{2}$ small square [1]
 well-judged straight line and thin continuous line, precise plots [1]
 triangle method/information for gradient seen marked on graph [1]
- (e) (i) G calculated from at least $\frac{1}{2}$ line [1]
- (ii) f in range 14 – 16(cm) [1]
- [Total: 10]**
- 2 (a)(b) table:
 units all correct, s °C °C [1]
 NOT C°, NOT centigrade [1]
- t values correct 0, 30, 60, 90, 120, 150, 180 [1]
 θ for **A** and **B** decreasing [1]
 final interval less than initial in both sets [1]
 both sets of data to precision of at least 1 °C [1]
- (c) statement matching temperature changes with justification referring to results and involving correct comparative change in temperature [1]
- justification has specific mention of temperature change in the same time owtte [1]
- (d) appropriate source of inaccuracy associated with procedure e.g. any one from:
 • water levels not the same
 • thermometer scales not read at 90°
 • initial temperatures different
 • not able to stir water
 • not waiting for temperature to stabilise initially / waiting time not long enough [1]
- (e) any two factors relating to apparatus from:
 • keep thermometer at same depth
 • same size / thickness / material of test-tube / same test tube
 • same water levels / volume / quantity / amount of water
 • same thickness / surface area of surface material [2]

[Total: 10]

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- 3 (a)(b)(c) table:
- p.d.s all $< 3.0\text{V}$ and to at least 1 d.p. [1]
 - currents all $< 1.00\text{A}$ and to at least 2 d.p. [1]
 - units all correct (V, A, Ω) [1]
 - R calculations correct [1]
 - V , I and R values all decreasing [1]
 - 2 or 3 sig. figs. in R column [1]
- (d) statement matches results, with matching justification which refers to values being 'too different' / 'difference beyond limits of experimental accuracy' owtte [1]
- (e) lamp in circuit 1 brighter than in circuits 2 and 3 and has greater resistance [1]
- (f) correct circuit symbol for variable resistor (rectangle with strike-through arrow only) [1]
- connected in correct series circuit [1]
- [Total: 10]**
- 4 (a) h_0 less than 100 cm [1]
- (b) (i) suitable explanation,
e.g. same no. of graduations between 60 cm mark and each end of object owtte,
or mark on side of rule and object [1]
- (ii)(iii) table:
 h values all decreasing [1]
 h values to at least 1 d.p. [1]
- (c) (i) correct calculations of H [1]
- (ii) correct $d \times H$ calculations [1]
- (d) $d \times H$ not constant / H doesn't always double when d halves owtte [1]
- (e) (i) reference to mass/weight of rule [1]
- (ii) measure height at bench [1]
- subtract h_0 [1]
- [Total: 10]**