CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 series

0625 PHYSICS

0625/61   Paper 6 (Alternative to Practical), maximum raw mark 40

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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1 (a) d_0 = 21 (mm) [1]

(b) D_o = 210 (mm) or 10 × candidate's **(a)** [1]

(c) L values 1.0, 2.0, 3.0, 4.0, 5.0 [1]
e values 1.0, 9.0, 21.0, 29.0, 40.0 [1]

(d) Graph:
Axes correctly labelled with quantity and unit and correct way around [1]
Suitable scales [1]
All plots correct to ½ small square
Good line judgement <u>and</u> a single, thin, continuous line [1]

(e) Triangle method used and shown on the graph [1]
Using at least half of line [1]

(f) Any one from:
Always measure from same point on spring (top or bottom of ring)
Wait for spring/weight to stop bouncing
Use of horizontal aid/ensure ruler is vertical
Bench surface not uniform [1]

[**Total: 11**]

2 (a) θ_R = 24 (°C) [1]

(b) (i) Table:
s, °C, °C [1]

(ii) About the same [1]
Justified with reference to numbers in table [1]

(c) Any two from:
Volumes of water
Room temperature/draughts
Same beaker
Initial water temperature [2]

[**Total: 6**]

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3 (a) Correct symbols for ammeter, voltmeter and lamps [1]
Ammeter and voltmeter in correct positions [1]
Correct parallel circuit [1]

(b) (i) and **(ii)** V_A = 1.9(V) R_A = 2.9(2) (Ω) [1]
Units V and Ω [1]

(iii) Pointer at correct position (0.65) [1]

(c) No mark awarded

(d) Statement matches readings (expect YES) [1]
Justified with idea of experimental inaccuracy [1]
(expect 'close enough', owtte)

[Total: 8]

4 (a) Trace:
Normal at 90° in correct position [1]
Angle of incidence = 30° (± 2°) [1]

(b) P_1P_2 distance $\geqslant$ 5.0 cm [1]
P_3P_4 line and line **GE** correctly and neatly drawn [1]

(c) (i) r = 18 or 19 or 20 [1]

(ii) i/r value correct [1]

(d) (i) i/r value 1.54 and both i/r values with no unit and to 2 or 3 significant figures [1]

(ii) Idea of within (or beyond) limits of experimental accuracy [1]

[Total: 8]

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5 **(a)** Measuring cylinder
Tape measure
Newtonmeter (spring balance)
Electronic balance
Manometer

1 mark each [5]

(b) **(i)** Viewing scale perpendicularly (owtte) [1]

(ii) Any one from:
Moving lens back and forth
Dark area (owtte)
Object and lens at same height from bench
Object lens and screen at right angles to bench [1]

[Total: 7]