UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers

0625 PHYSICS

0625/63 Paper 6 (Alternative to Practical), maximum raw mark 40

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1 **(a)** Table:
correct *d* values
70.0, 60.0, 50.0, 40.0, 30.0, 20.0, 10.0 [1]
cm, N ALLOW m, mm if consistent with figures [1]

(b) **(i)** *d* against *F* (or vice versa) OR distance against force/forcemeter reading
NOT 'extension', 'forcemeter', quantity expressed just as units [1]

(ii) Straight line [1]
Through origin or wtte [1]

(c) Would change forcemeter reading/change mass on rule/wtte [1]

(d) Check distance from bench is the same at two points or wtte/
Line up by eye with windowsill (or suitable horizontal reference) [1]

[Total: 7]

2 **(a)** 23 °C need unit for the mark [1]

(b) Axes correctly labelled with quantity and unit [1]
Suitable scales [1]
All plots correct to ½ small square [1]
Good line judgement [1]
Thin, continuous line [1]

(c) Two from:
Room temperature/humidity/sun through window/air conditioning
Draughts
Initial water temperature [2]

[Total: 8]

3 **(a)** **(i)** $V_1 = 1.9$ [1]
$I_1 = 0.3$ [1]
Units V and A both correct [1]

(ii)/(iii) $R_P = 6.33$ and $4R_P = 25.3/25.2$ to 2 or 3 sig. figs. [1]
Ω [1]

(b) $R_S = 23.8\ (\Omega)$ or $24\ (\Omega)$ [1]

(c) Correct statement (from candidate's work)
with matching justification (idea of within or beyond experimental accuracy) [1]

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(d) Circuit: correct symbols for ammeter, voltmeter and lamp in correct series circuit [1]

(e) **(i)** Change/control current/voltage [1]

(ii) To obtain range of readings (or wtte) [1]

[Total: 10]

4 **(a)** Blocks parallel with ONE sphere completely between [1]
Rule correctly placed [1]

(b) **(i)** Line of sight perpendicular to scale [1]
Line of sight along bottom of meniscus [1]

(ii) 70 (cm^3) [1]

(iii) 0.53 cm^3, 2 or 3 significant figures, with unit [1]

[Total: 6]

5 **(a)** Trace:
Normal at 90° in correct position [1]
N at 4 cm above AB and angle of incidence 20° [1]
a value 4.3 cm ± 1 mm correct answer only [1]

(b) All correct lines drawn, thin and continuous [1]
a and *b* both with consistent, correct unit which matches figures [1]
b value 6.2 cm ± 3 mm correct answer only [1]
n value range 1.4 – 1.5 after rounding [1]
to 2 or 3 significant figures and no unit [1]

(c) One from:
Pins well spaced
Pins at least 5 cm apart
View bases of pins
Ensure pins vertical
Use thin lines
Sharp pencil
Use thin pins [1]

[Total: 9]

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