CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0625 PHYSICS

0625/52 Paper 5 (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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CAMBRIDGE
International Examinations

1 (a) (i) *h*, *w* and *d* recorded in cm and sensible, accept 2.0 – 5.0 cm [1]

(ii) V_A present and *h*, *w*, *d* all to nearest millimetre [1]

(iii)(iv) *m* recorded and density calculated correctly [1]

density between 2.0 and 3.5 (g / cm^3) [1]

(b) (i) sensible *d* value – not smaller than all of *h*, *w*, *d* [1]

(ii) diagram showing blocks and rule correctly used – blocks touching the sphere, and rule spanning gap and touching blocks [1]

(c) V_1 90 – 110 cm^3, V_2 larger [1]

V_B correctly calculated and sensible, with unit cm^3 [1]

(d) any two from:
measuring cylinder not sensitive owtte
some clay left on fingers
cube not perfectly shaped / difficult to measure owtte
air bubbles clinging to modelling clay / within the modelling clay
volume of string
difficult to judge the bottom of the meniscus / bubble on meniscus [2]
ignore parallax
do not credit poor experimental practice e.g. spills or splashes

[Total: 10]

2 **(a)** sensible cold water temperature (accept 15(°C) – 50(°C)) [1]

(b) table:
correct V values 10, 20, 30, 40, 50 [1]
temperatures decreasing, evidence of temperatures to at least 1°C [1]
final interval less than initial interval [1]

(c) t_2 more than t_1 [1]
R_1 and R_2 correct [1]
cm^3 / s [1]

(d) rate / flow is not constant [1]

(e) any two from:
room temperature / air conditioning
initial / hot water temperature
volume / quantity / amount of hot water
cold water temperature
intervals / time between adding volumes of water [2]
ignore draughts / humidity / pressure

[Total: 10]

3 **(a)** V to at least 1 d.p. and < 3 V and increasing [1]
all column headings with correct unit cm, V, A, Ω [1]

(b) graph:
axes correctly labelled and correct orientation [1]
suitable scales, plots using more than half available axes [1]
R values calculated and plotted correct to ½ small square [1]
good line judgement, thin, continuous, [1]
do not allow 'blobs' greater than half square diameter

(c) triangle method shown on graph [1]
G calculation correct using large triangle [1]

(d) R_1 value to 2 or 3 significant figures [1]
R_1 value about 2 × value at 0.5 m [1]

[Total: 10]

4 first ray trace:
normal at 90° in correct position (2.0 cm from **A**) [1]
angle of incidence 30° ±1° [1]
all lines present and neat [1]
emergent ray parallel to **EF** [1]
second trace:
complete and neat [1]

(h) *r* value correct to ±1° [1]

(j) *r* value correct to ±1° and within 2° of first value [1]

(k) idea of within (or beyond) limits of experimental accuracy [1]

(l) any two from:
viewing bases of pins / ensure that pins are vertical / not bent
large pin separations
use of repeats
use of thin pencil lines (or equivalent comment)
close one eye (when aligning pins)
use thin / sharp pins [2]
ignore parallax error
NOT dark room

[Total: 10]