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

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2014 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

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]

© Cambridge International Examinations 2014

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]

© Cambridge International Examinations 2014

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]

© Cambridge International Examinations 2014