UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper for the guidance of teachers

0625 PHYSICS

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

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1 **(a)** graph:
axes: the right way round, labelled *x* and *y* with unit cm [1]
scale: both 10 small squares = 2 cm
(either or both 20 small squares = 5 cm also acceptable) [1]
plots: all correct to ½ small square [1]
line: well-judged, best-fit, straight, thin, continuous line [1]

(b) correct triangle method using at least ½ candidate's line, with method clearly indicated on graph [1]
G = 0.94 – 1.00, no ecf [1]

(c) 1.0/(candidate's *G*) calculation correct, 2 or 3 significant figures and unit N [1]

(d) **(i)** (where rule) balances on pivot o.w.t.t.e. [1]

(ii) take readings from 49.7 OR
adjust rule by adding weight until it balances at 50.0 cm mark [1]

[Total: 9]

2 **(a)** $\theta_c = 24$ [1]
°C [1]

(b) $\theta_{av} = 55$ (°C) ecf from **(a)** [1]

(c) any two from:
stirring
waiting for temperature (to stabilise)
view thermometer at right angles o.w.t.t.e. [2]

(d) heat loss (to surroundings) o.w.t.t.e. [1]

(e) one from:
lagging beakers o.w.t.t.e.
use of lid
swifter transfer of water [1]

(f) one from:
amount of stirring o.w.t.t.e.
hot water temperature
cold water temperature
room temperature o.w.t.t.e.
transfer time [1]

[Total: 8]

3 (a) (i) 0.27 (A) [1]

(ii) expect YES (ecf: no) [1]
expect close enough / within limits of experimental accuracy o.w.t.t.e.
ecf: beyond limits of experimental accuracy o.w.t.t.e. [1]

(b) vary/control current/voltage [1]

(c) (i) voltmeter symbol correct and correctly connected across all three resistors [1]

(ii) 2.2 (V) [1]

(iii) *R* correctly evaluated
ecf from **(ii)** [1]
2 or 3 significant figures and unit Ω [1]

[Total: 8]

4 (a) (i) normal at 90°, at centre of **MR** and crossing **MR** [1]

(ii) **AB** is a continuous line from **B**, 8 cm long [1]
AB is at 40° to normal [1]

(b) (i) continuous, thin line that reaches normal and at least touches P_2 and P_3 dots [1]

(ii) $r = 40 – 43(^{o})$ (no ecf) [1]

(c) any two from:
thickness of lines
thickness of protractor o.w.t.t.e. / accuracy of reading protractor
thickness of pins / pin holes [2]
accept thickness of mirror / glass in front of mirror

(d) ticks in boxes 1, 3, 5 (1 mark each)
(if more than 3 ticks, –1 for each tick in a wrong box to minimum of 0) [3]

[Total: 10]

5 **(a)** 200 m or more with unit [1]

(b) tape measure, trundle wheel or gps device [1]

(c) correct working seen [1]
345.67 (accept 345.66, 345, 346, 350) [1]

(d) (No), readings (time or distance) too inaccurate [1]

[Total: 5]