CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0625 PHYSICS

0625/61

Paper 6 (Alternative to 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 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.



| | Page 2 | | Mark Scheme | Syllabus | Paper | |
|---|--------|-------------------|--|--------------------|------------------------|--|
| | ` | _ | IGCSE – October/November 2013 | 0625 | 61 | |
| 1 | (a) | rule bala | nced <u>and</u> pivot at centre of mass | | [1] | |
| | (b) | OR add | take readings from 50.2 cm mark mass/weight/load | | 141 | |
| | | OR place | e pivot at 50.2 cm mark | | [1] | |
| | | | | | [1] | |
| | | | kwise 77.5 (or 78) (Ncm) clockwise 78 (Ncm) | | [1] | |
| | (d) | | repeats nate between two best positions that almost balance ble method to locate centre of mass Q | e but tip opposite | sides o.w.t.t.e [1] | |
| | | Or Guita | ble memor to locate centre of mass & | | [Total: 5] | |
| 2 | (a) | 87 (°C) | | | [1] | |
| | (b) | (i) s, °C | ;, °C | | [1] | |
| | | | B <u>and</u> greater temperature difference OR numbers quoted, <i>must</i> see 21 and 8 or 24 and | 5 | [1] | |
| | (| iv) A 23 | 8(°C) and B 40(°C) | | [1] | |
| | | (v) 20 – | 26 (°C) | | [1] | |
| | (c) | | viewing thermometer at right angles ence to being ready on time | | [1] | |
| | (d) | | from: nperature tarting temperature | | | |
| | | distance | of thermometer bulb from water surface reference to draughts / fans / air conditioning | | [2] | |
| | | · S.S Vaint | . c. | | [Total: 8] | |
| | | | | | [10tai. 0] | |

| Page 3 | | | Mark Scheme Syllabus | | | | | | | Paper | | | | | |
|--------|---|--|---|---|--|--|--|--|---|---|---|--|---|---|---|
| | - | | | IGC | SE - (| | | | er 2013 | 3 | | | | 61 | |
| (a) | | | | | | | | | | | | | | | [1] [1] |
| | (ii) <i>I</i> | P ₁ = | 0.54 | (W) e.d | c.f. all | owed | | | | | | | | | [1] |
| | (iii)(i | v)(v | ⁄) P₁ | = 1.59 | (or 1. | .6) W | | | | | | | | | [1] |
| (b) | | | | | | | | | | | ntal acc | uracy o. | w.t.t.e. | | [1] [1] |
| (c) | l. f | amp or v | ps in _l ⁄ariab | le resis | tor, la | mps a | and vol | | | power | - supply | , with co | rrect sy | mbols | [1] [1] |
| | (ii) \ | /ary | curre | ent (or p | o.d.) | | | | | | | | | | [1] |
| | | | | | | | | | | | | | | [Tota | l: 9] |
| (a) | (i)(ii) | | | | | | | | | | | | | | [1] [1] |
| (b) | (i)(ii) | OR | R 11.4 | 4 <u>cm</u> 2 a | | | 7) <u>cm</u> | | | | | | | | [1] |
| (| ` ' | | | | | • | or 1.63 | 3 or 1. | .634) | | | | | | [1] |
| (c) | | | | | | • | | or 16 | 3.4 <u>mm</u> |) | | | | | [1] [1] |
| (d) | up to | 0.5 | cm e | ither si | de of | 18.2 c | m | | | | | | | | [1] |
| (e) | use of mark place ensu lens | of da pos e me re o / obj | arken sition etre ru object | of cent lle on b and ler | re of I ench is are | ens of or class | n holde amp in e heigh | er posit it from | ion) n the be | | ering | | | | |
| | | | ce of p | oarallax | with | actior | and r | easor | 1 | | | | | | [2] |
| | | | | | | | | | | | | | | [Tota | l: 9] |
| | (a) (b) (c) (d) | (a) (i) (iii) (iii) (b) state justiff (c) (i) (i) (iii) (iii) (iii) (iii) (iii) (c) (f) (d) up to (e) any to use (f) and the place ensure lensure repeated to the control of the control o | (a) (i) 1.8 0.3 (ii) P ₁ = (iii)(iv)(v) (b) statement justificat (c) (i) diagram for vone (ii) vary (a) (i)(ii) u = v = v = v = v = v = v = v = v = v = | (a) (i) 1.8 (V) 0.3 (A) (ii) P ₁ = 0.54 (iii)(iv)(v) P _T (b) statement many in proceeding the state of t | (a) (i) 1.8 (V) 0.3 (A) (ii) P ₁ = 0.54 (W) e.c. (iii)(iv)(v) P _T = 1.59 (b) statement matches rejustification in terms of lamps in parallel, for variable resistance voltmeter compared (ii) vary current (or produced to the content of the con | (a) (i) 1.8 (V) 0.3 (A) (ii) $P_1 = 0.54$ (W) e.c.f. all (iii)(iv)(v) $P_T = 1.59$ (or 1.6) (b) statement matches results justification in terms of with lamps in parallel, variated for variable resistor, lamps in parallel, variated variable resistor, lamps one voltmeter correctly (ii) vary current (or p.d.) (a) (i)(ii) $u = 26$ (mm) or 2.6 (ov = 44 (mm) or 4.4 (ov = 44 (mm)) or 4.4 (ov = 44 | (a) (i) 1.8 (V) 0.3 (A) (ii) P ₁ = 0.54 (W) e.c.f. allowed (iii)(iv)(v) P _T = 1.59 (or 1.6) W (b) statement matches results (experimentation in terms of within or lamps in parallel, variable refor variable resistor, lamps at one voltmeter correctly positive vary current (or p.d.) (a) (i)(ii) u = 26 (mm) or 2.6 (cm) v = 44 (mm) or 4.4 (cm) (b) (i)(ii) 1144 mm² and 70 mm OR 11.44 cm² and 7.0 (or e.c.f. from (a) (iii) x = 16 or 16.3 or 16.34 (1.6 e.c.f. from (b)(i) and (ii) (c) f = 16 or 16.3 or 16.34 cm (160 or figiven to 2 or 3 significant figures) (d) up to 0.5 cm either side of 18.2 cm (consume object and lens are same lens / object / screen perpendicure repeats | (a) (i) 1.8 (V) 0.3 (A) (ii) P ₁ = 0.54 (W) e.c.f. allowed (iii)(iv)(v) P _T = 1.59 (or 1.6) W (b) statement matches results (expect YES justification in terms of within or beyond for variable resistor, lamps and volone voltmeter correctly positioned (ii) vary current (or p.d.) 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(c) (i) diagram: lamps in parallel, variable resistor in series with power supply, with correct sy for variable resistor, lamps and voltmeter one voltmeter correctly positioned (ii) vary current (or p.d.) 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(c) (i) diagram: lamps in parallel, variable resistor in series with power supply, with correct symbols for variable resistor, lamps and voltmeter one voltmeter correctly positioned (ii) vary current (or p.d.) [Tota (a) (i)(ii) $u = 26$ (mm) or 2.6 (cm) $v = 44$ (mm) or 4.4 (cm) (b) (i)(iii) $1.444 \frac{cm^2}{cm^2}$ and 7.0 (or $7.0 \frac{cm}{cm^2}$ e.c.f. from (a) (iii) $v = 1.6$ or 16.3 or 16.34 (1.6 or 1.63 or 1.634) e.c.f. from (b)(i) and (ii) (c) $v = 1.6$ or 16.3 or 16.34 (1.6 or 1.63 or 16.34 mm) $v = 1.6$ or 1.63 |

| Page 4 | Mark Scheme | Syllabus | Paper | |
|--------|-------------------------------|----------|-------|--|
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5 (a) 54 – 55 [1]

(b) (i) table:
 e values 12, 22, 36, 50, 60 (e.c.f. from (a))

(ii) graph:
 axes correctly labelled e/mm and F/N and correct way round
 suitable scales
 all plots correct to ½ small square
 good line judgement
 thin, single continuous line

[1]

(iii) triangle method using at least half of candidate's line, shown on the graph G = 11 - 13, no e.c.f. [1]

[Total: 9]