MWAKICAN COMMON EXAMINATION

Kenya Certificate of Secondary Education

PHYSICS Paper 3

232/3 March/April 2014

Marking scheme

**Question one**

b(i) E=3.0V + 0.1 V (1mk)

 (ii) Ammeter reading, I =0.15 A +/- 00.02 A

 Voltimeter reading, V = 2.4 V +/- 0.1 (2mks)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Length PQ | 100 | 80 | 60 | 50 | 40 | 30 | 20 |
| Ammeter reading, I (A) | 0.15 | 0.20 | 0.22 | 0.25 | 0.27 | 0.3 |  |
| Voltimeter, V (V) | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | +/- 0.1V |
| (E-V) v | 0.6 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 |  |

 Each row 1/2×4=2mks

 Total (6mks)

Graph.

c. (i) Axis with units (1mk)

 Scale – simple and uniform (1mk)

 Plotting- ½× 4 pts (2mks

 Line of best fit (1mk)

 (ii) Slope =$\frac{0.8-0.4}{0.2-0.1 }$ =$\frac{0.4}{1.1}$ =4Ω (3mks)

 (iii) E=V+Ir

E-V= rI compare y=mx+c (3mks)

r-gradient

= 4Ω

**Question 2**

**Part A**

1. (i) t=28.34 +/- 1s (1mk)

(ii)T=t/20 = $\frac{28.34}{20}$= 1.417s (1mk)

(iii) T = 2 π$\sqrt{\frac{l}{g}}$ (3mks)

T2 = 4$π^{2}\frac{l}{g}$

g=$\frac{ 4π^{2 }l}{T2}$ √

$\frac{4π×0.5}{1.417^{2}}$ √

9.83 m/s2 √

Part B

a.(i) position of c.o.g=25 cm mark +/- 0.1 cm 1(mk)

(position may vary if the rule is not uniform )

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| mass, m (g) | 10 | 20 | 30 | 40 | 50 | 60 | error |
| Distance, d1 (cm) | 4.0 | 6.9 | 9.0 | 10.9 | 12.0 | 13.0 | +/- 0.1 |
| Distance d2 (cm) | 20 | 17.1 | 15.0 | 13.5 | 12.0 | 11.0 | +/- 0.1 |
| m×d2 | 200 | 342 | 450 | 540 | 600 | 660 |  |

 (6mks)

Each row (2mks)

d(i) Graph

 Axis well labeled and with units (1mk)

 Scale- simple and uniform (1mk)

 Plotting- 1/2× 4 points collectly plotted (2mks)

 Line of best fit passing through at least 4pts (1mk)

d(ii) Slope = $\frac{∆md2}{∆d1}$

 = $\frac{500-400}{10-8}$ √

 = $\frac{100}{2}$ √

 50g √ (3mks)

Slope represents the mass of the half meter rule

**End**