

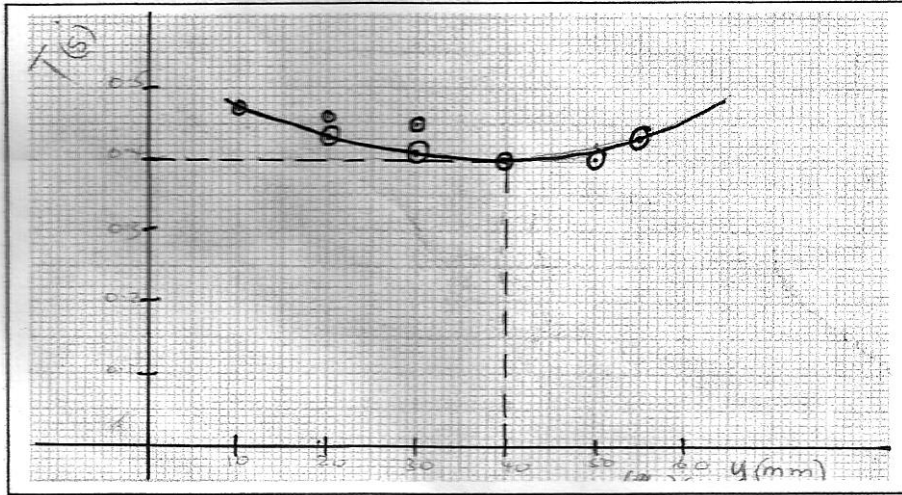
Marking scheme

LARI SUB – COUNTY JOINT EVALUATION EXAM 2019 PHYSICS 232/3

Q1 a) $PM = h = 12.0 \pm 1.0 \text{ cm} (11.0 - 13.0)$ to 1 dp $\sqrt{1 \text{ mk}}$

c)

Y (mm)	10	20	30	40	50	55
t(s) ± 1.0	2.35	2.28	2.05	2.00	2.10	2.13
T(s)	0.47	0.43	0.41	0.42	0.43	0.74



g) -Working $x = \frac{1}{3} h \sqrt{1}$

- Evidence of extraction from graph $\sqrt{1}$

-Reading of value from her/ his graph

Within range (0.40-0.45) $\sqrt{1}$

h) $T = 0.4$

$$t = 0.4 \times 5 = 2 \text{ sec}$$

$$\frac{1}{3}h = \frac{1}{3} \times 12 = 4 \text{ cm} = 40 \text{ mm}$$

T when $y = 40 \text{ mm} = 0.4 \text{ s}$ (shown on the graph)

$$(2)^2 = \left(\sqrt{\frac{33.6}{k}} \right)^2 \sqrt{1}$$

$$4 = \frac{33.6}{K} \sqrt{1}$$

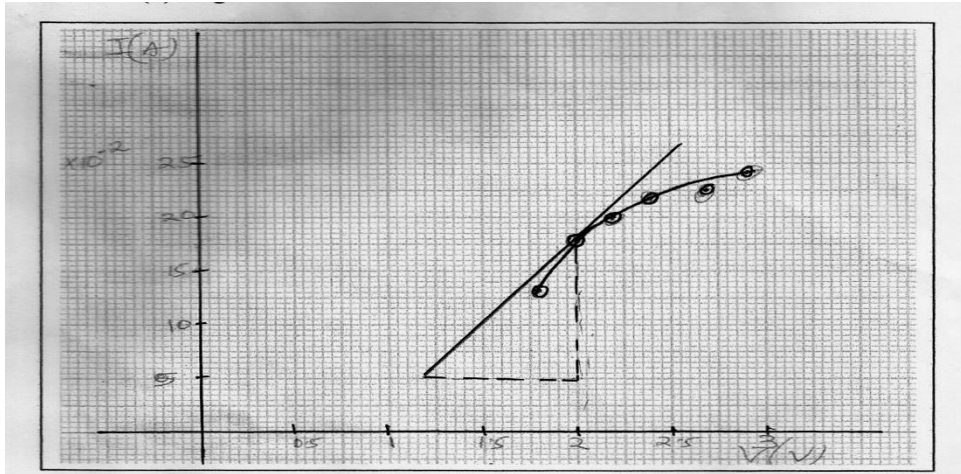
$$K = \frac{33.6}{4} \sqrt{1}$$

$$= 8.4 \sqrt{1}$$

2. a (ii)

Length L	100	80	60	40	20	0
Voltage V	1.8	2.0	2.2	2.4	2.7	2.9
Current I (A)	0.16	0.18	0.20	0.22	0.22	0.24

ii) Brightness increases $\sqrt{1}$

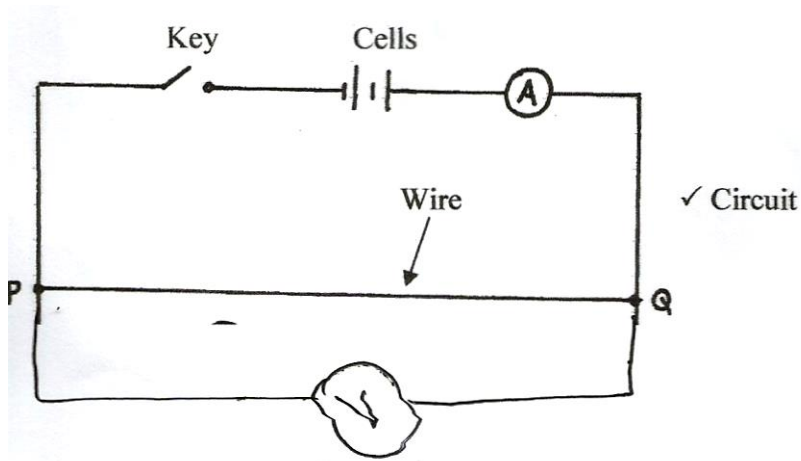


- iv) Axes -1
- Scale - 1
- Plotting - 2 at least four each 1/2 mark
- Curve -1 to pass through at least 3 correct plotted points.

v) Tangent at the point

$$g = \frac{17.5 - 5}{2 - 1.2} \times 10^{-2} = 1.5625 \times 10^7 \text{ A/V}$$

$$= \approx 1.563 \times 10^7 \text{ A/V}$$



NB - ammeter cell and switch in series voltmeter parallel to wire

$$V = 2.4 \text{ V } \checkmark \frac{1}{2}$$

$$I = 0.3 \text{ A } \checkmark \frac{1}{2}$$

$$d \approx 0.36 \text{ mm} = 3.6 \times 10^{-4} \pm \sqrt{0.01} \text{ mm}$$

$$P = 0.785 \left(\frac{2.4}{0.3} \right) \left(\frac{3.6 \times 10^{-4}}{1} \right)^2 \quad \checkmark 1 \text{ substitution of own values}$$

$$= 8.1389 \times 10^{-7} \Omega \text{ m } \checkmark \frac{1}{2} \text{ calculated } \checkmark \frac{1}{2} \text{ unit}$$