

**KIRINYAGA CENTRAL SUB-COUNTY JOINT EXAMINATION - 2015**  
**232/3 - PHYSICS PAPER 3 (PRACTICAL) MARKING SCHEME**

**QUESTION ONE**

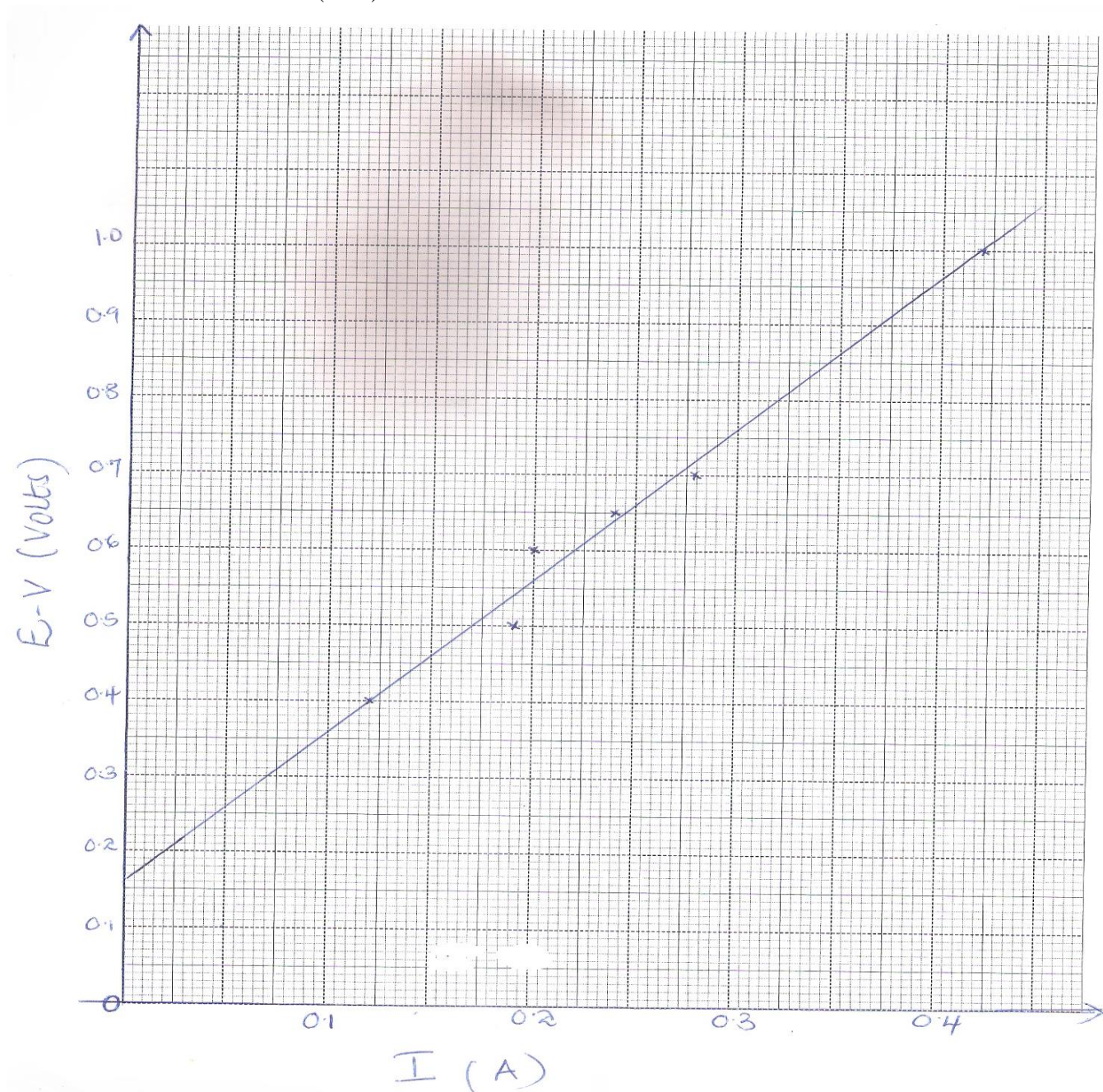
- (b) (i)  $I = 0.14 \pm 0.01A$ ,  $V = 2.45 \pm 0.01$   
 (c)  $E = 3 \text{ V}$  max range

(d) **TABLE**

L(cm)	100	70	60	50	40	20	
I(A)	0.14	0.20	0.24	0.25	0.28	0.38	(3mks)
V(Volts)	2.45	2.31	2.29	2.26	2.10	1.92	(3mks)
E-V(Volts)	0.55	0.69	0.71	0.74	0.90	1.08	(1mk)

- Each correct 2 (½mk) max 3 each correct V (½mk)  
 - Correct E-V (1mk).

Max 3



- (e) **Graph**  
 - Labelling axis (1mk)  
 - Appropriate scale (1mk)  
 - Plotting: 5 – 6 points (2mks)

- Straight line with a positive gradient (1mk)

- (f) Slope (1mk)  
 Evaluation (1mk)  
 Answer (1mk)

- (g) Slope of the graph = r, internal resistance (1mk)  
 Answer (1mk)

2. **PART A**

(d)  $d = 18 \pm 1\text{cm}$

(f) Table

U(cm)	25	30	35	40	45
V(cm)	49.0	36.5	32.0	28.0	26.0
$M = \frac{V}{U}$	1.96	1.22	0.91	0.7	0.58

V – Each value (½mk) max (3mks)

M – Correct computation of M (1mk)

- (g) Graph  
 Axes labeled with units (1mk)  
 Scale (1mk)  
 Plotting (2mks)  
 Straight line with positive gradient (1mk)

(h)  $Slope\ S = \frac{\Delta M}{\Delta V} \checkmark = \frac{(20 - 8.5)10^{-1}}{50 - 29} \checkmark = 0.0595 \quad \checkmark (3\text{mks})$

Accuracy 0.052 – 0.058

(i)  $n = \frac{1}{Slope} = \frac{1}{0.0595} = 16.81 \quad \checkmark\checkmark (2\text{mks})$

**PART B**

(a)  $G = 50.0 \pm 1.0\text{cm} \quad \checkmark (1\text{mk})$

(b) (i)  $\chi = 0.150\text{m} \quad (\frac{1}{2}\text{mk})$

$\gamma = 0.102\text{m} \quad (\frac{1}{2}\text{mk})$

(ii)

MASS (g)	WEIGH, F(N)	DISTANCE, Y(M)	$\frac{1}{Y} M^{-1}$
50	0.5	0.102	9.804
70	0.7	0.072	13.89
90	0.9	0.057	17.54
100	1.0	0.051	19.61

$$\begin{aligned} \text{Average value} &= \frac{9.804 + 13.89 + 17.54 + 19.61}{4} \checkmark \\ &= 15.21 \quad \checkmark (2\text{mks}) \end{aligned}$$

(iii)  $F = \frac{0.3T}{Y}$   
 $0.149 = 0.3T \times 0.15 \times 15.21$   
 $T = \frac{0.149}{0.3 \times 0.15 \times 15.21} \quad \checkmark^1$   
 $= 0.2177$

