KIRINYAGA CENTRAL SUB-COUNTY JOINT EXAMINATION - 2015

232/3 - PHYSICS PAPER 3 (PRACTICAL) MARKING SCHEME

QUESTION ONE

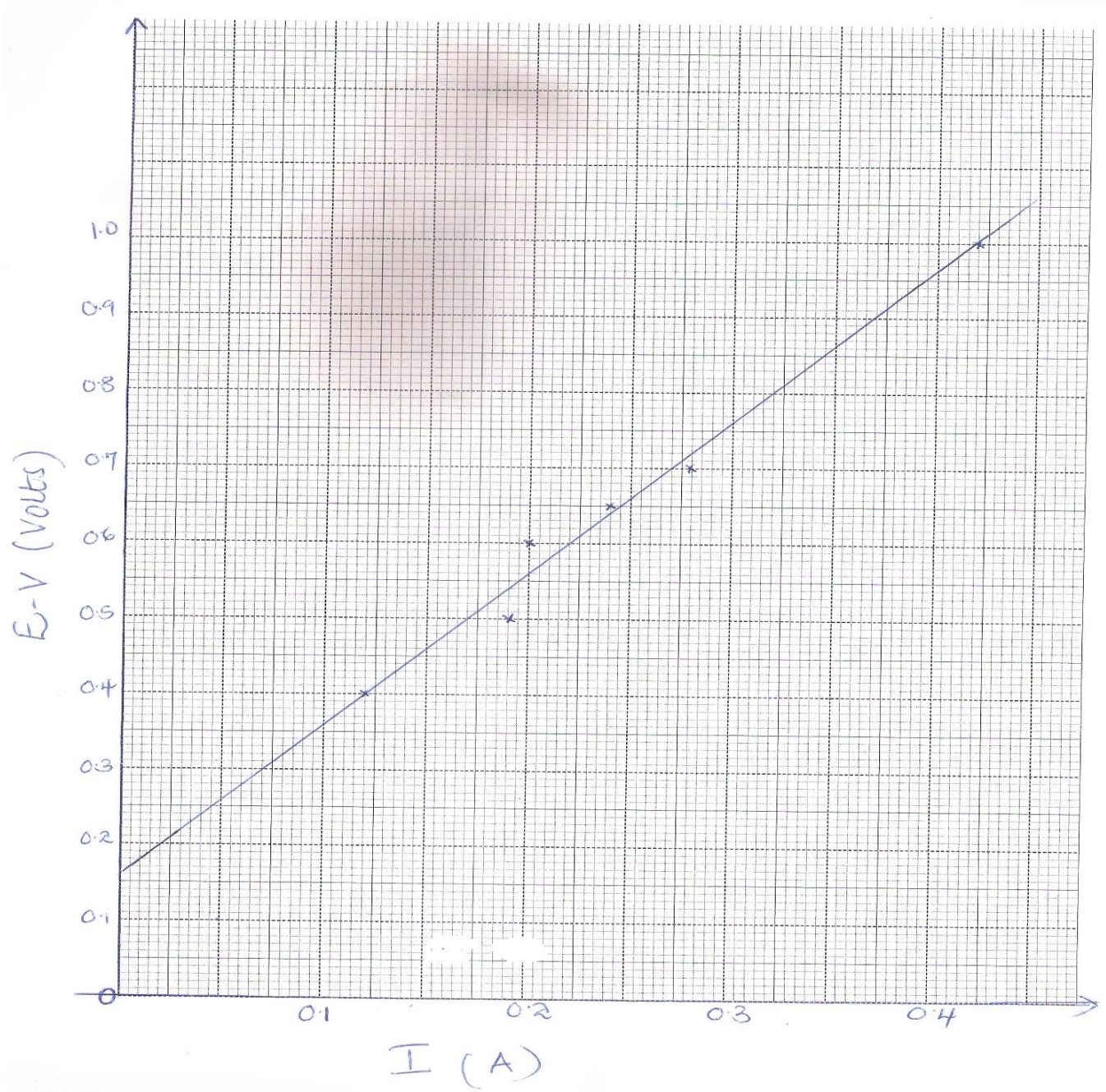
(b) (i) I = 0.14 ± 0.01A, V = 2.45 ± 0.01

(c) E =3 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) Max 3
- Correct E-V (1mk).



(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 ± 1cm

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

Accuracy 0.052 – 0.058

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

PART B

(a) G = 50.0 ± 1.0cm ✓ (1mk)

(b) (i) χ = 0.150m (½mk)
γ = 0.102m (½mk)

(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

$Average\ value = \frac{9.804 + 13.89 + 17.54 + 19.61}{4}$ ✓

= 15.21 ✓ (2mks)

(iii) $F = \frac{0.3T}{Y}$

0.149 = 0.3T x 0.15 x 15.21

$T = \frac{0.149}{0.3 \times 0.15 \times 15.21}$ ✓¹

= 0.2177