END TERM 2 2025
JULY 2025
PHYSICS
Paper 3

MARKING SCHEME

Part A

u (cm)	20	25	30	35	40	45
v (cm)	20	17	15	14	13	13
u + v (cm)	40	42	45	49	53	58
uv (cm^2)	400	425	450	490	520	585

Values of v within ± 5cm of the given value ½ mk each value
Value of u + v ½ mk to a maximum of 3 values. Use candidates value correctly added
Values of uv, ½ mk to a maximum of 3 values use candidates value correctly worked

(f) Graph
Axes correctly labelled with units – 1mk
Appropriate scale, simple, covering all values and at least half of the grid
Each point correctly plotted to within one small square ½ mk to a maximum of 4 points
Line of best fit within one small square of the plotted point 1 mk.

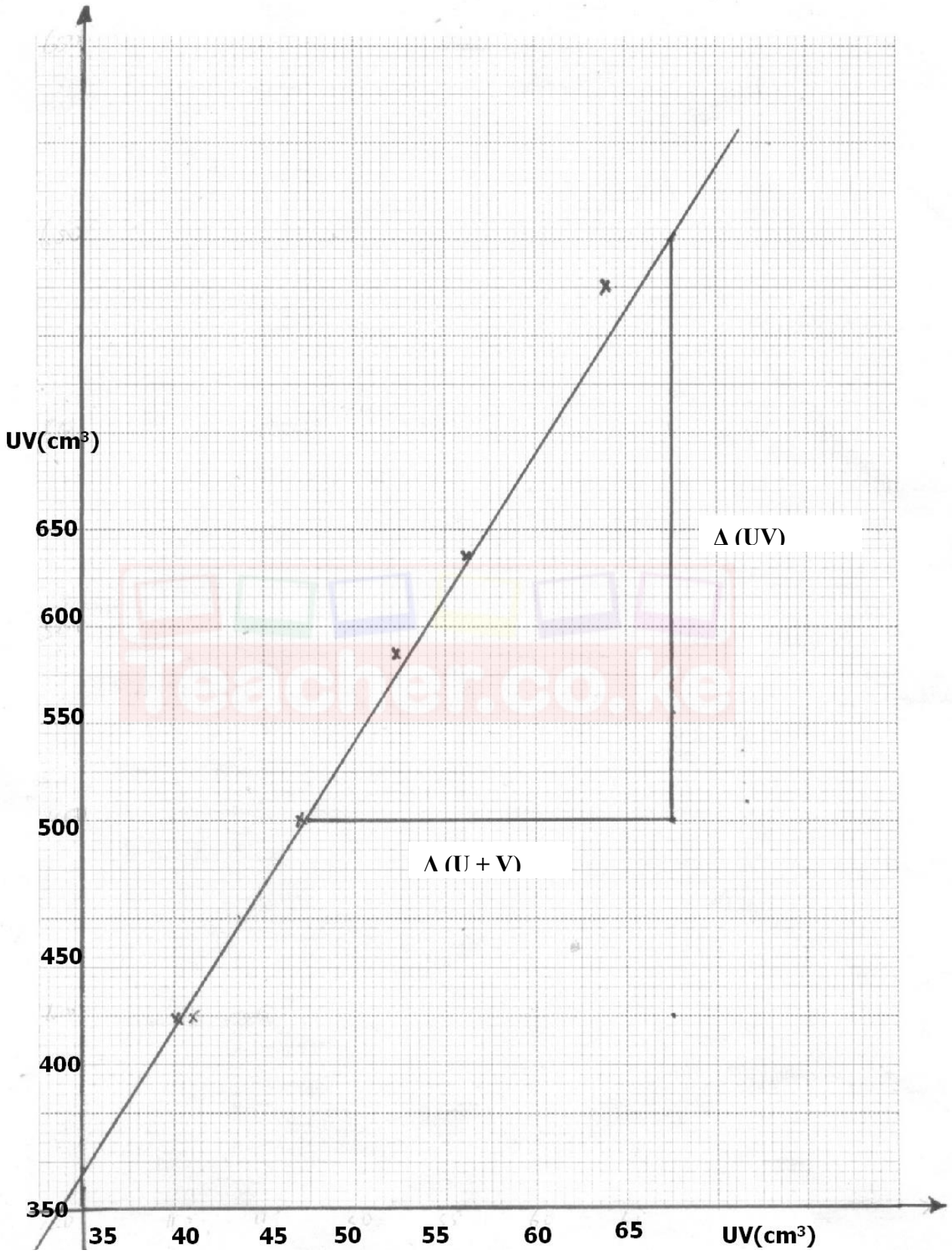
Total = 5mks

(g)

$$\text{Score} = \frac{\Delta uv}{\Delta(u+v)} \quad \text{evidence on the graph (1mk)}$$

$$= \frac{600-450}{62.5-45} \quad \text{Correct interval from the graph (1mk)}$$

$$= 8.57\text{cm} \pm 2\text{ cm}$$



Part B

(h) (i) h = 14.5 ± 1cm ***(½ mk)***

(ii) d = 4.0cm ± 1cm ***(½ mk)***

(iii) t = h – d = 14.5 – 4.0 = 10.5cm ***(½ mk)***

(iv) m = 45g (½ mk) candidates value within range of 35 – 55g

(v) D = 2.45cm ± 0.1cm ***(½ mk)***

(vi) R = $^{D}/_{2}$ = $^{2.45}/_{2}$ = 1.225cm follow candidates work ***(½ mk)***

(vii) 45 = ρ x 3.142 x $(1.225)^2$ ***1mk***

ρ = $^{45}/_{4.715}$ ***1mk***

= 9.54g/cm^3 ***1mk***

2. (b) E = 3.0 ± 0.2V 1mk (Ans with no units ½ mks)

(d)

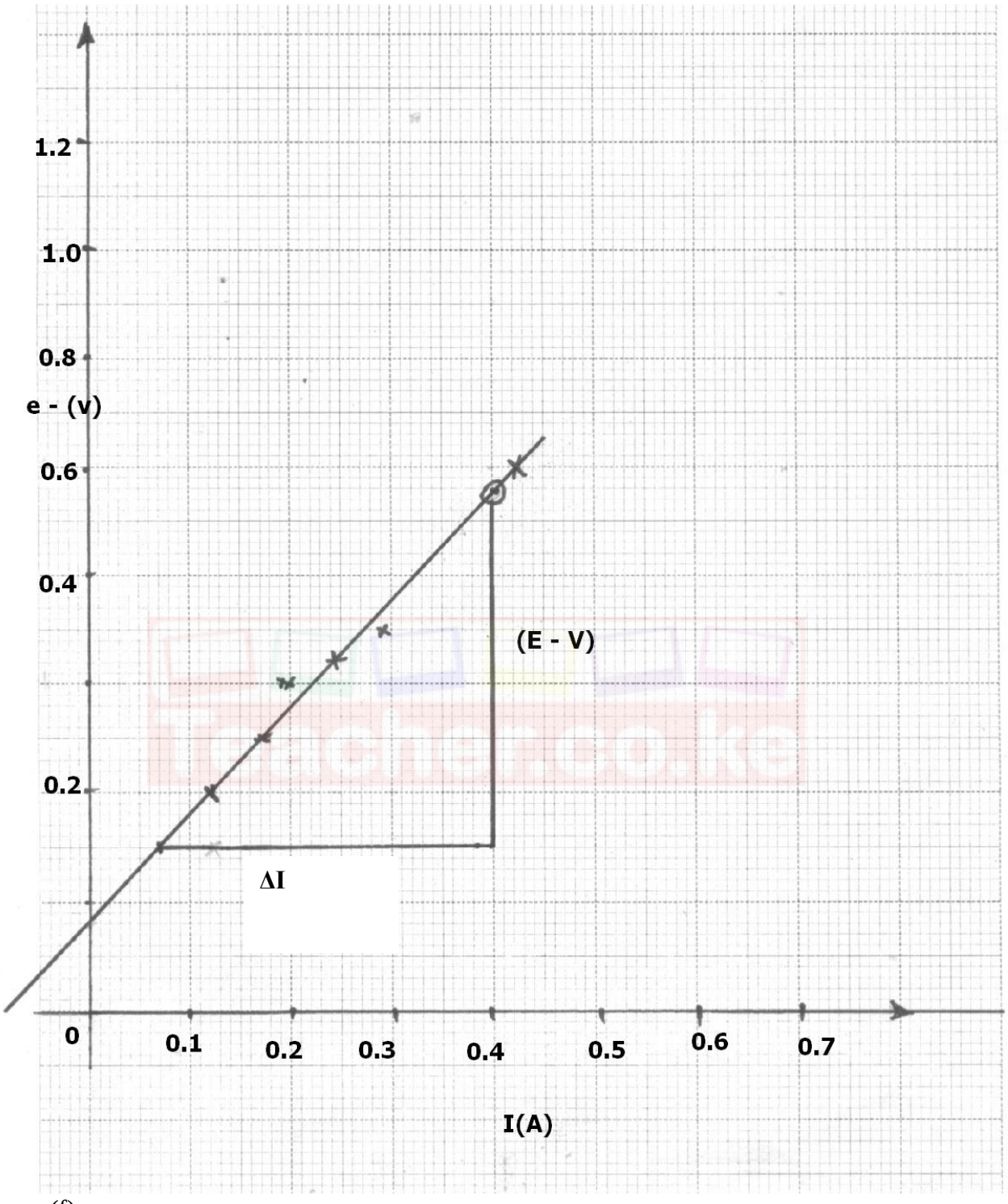
L (cm)	**100**	**70**	**60**	**50**	**40**	**20**	
I (A)	0.12	0.17	0.20	0.24	0.28	0.42	±0.1A
V (V)	2.6	2.5	2.4	2.35	2.3	2.0	±0.2V
E – V (V)	0.4	0.5	0.6	0.65	0.7	1.0	

Correct values ½ mk for each correct value

Voltage values ½ mk for each correct value

(E – V) values ½ mk to maximum of 2 values

(e) Same as for the graph in question 1 part A



(f)

$$\text{Slope} = \frac{\Delta(E - V)}{\Delta I}$$ Evidence on the graph (1mk)

$$= \frac{0.96 - 0.30}{0.4 - 0.07}$$ Correct interval from graph (1mk)

$= 2\Omega \pm 0.2$ ***(1mk)***

(g) (i) r = slope ***(1mk)***

= 2Ω **(1mk)**

(ii) E – V = Ir

3. 0 – V = 0.3 x 2 ***(1mk)***

V = 3.0 – 0.6

= 2.4V ***(1mk)***