PHYSICS

PAPER 3

PRACTICAL

MARKING SCHEME

1.

Length, L, (cm)	100	80	60	40	20	0
Current, I (A)	0.12	0.14	0.16	0.17	0.18	0.22
Voltage (V)	0.25	0.40	0.50	0.60	0.85	1.65
V^2 (V^2)	0.0625	0.16	0.25	0.36	0.7225	2.7225
$V/_I = R$ (Ω)	2.083	2.857	3.125	3.529	4.722	7.5

I values $\pm$ 0.02

All correct 2marks

at least 4 correct 1 mark

V value $\pm$ 0.05

All correct 2 marks

at least 4 correct 1 mark

V^2 – All correct 2 marks

At least 4 marks

R – All correct 1 mark

(e) (i) Rt R = 7

S = $\underline{2.68 – 1.4}$ correct intervals – 1 mark

   7.5 – 6.0   evaluation – 1 mark

Accuracy – ½ mark

$$\frac{1.28}{1.5}$$ unit – ½ mark

= 0.853 W $\pm$ 0.1

(ii) At R = 4

$$\frac{S = 1.08 - 0.1}{6 - 2.7}$$ correct intervals – 1 mark

                           evaluation – 1mark
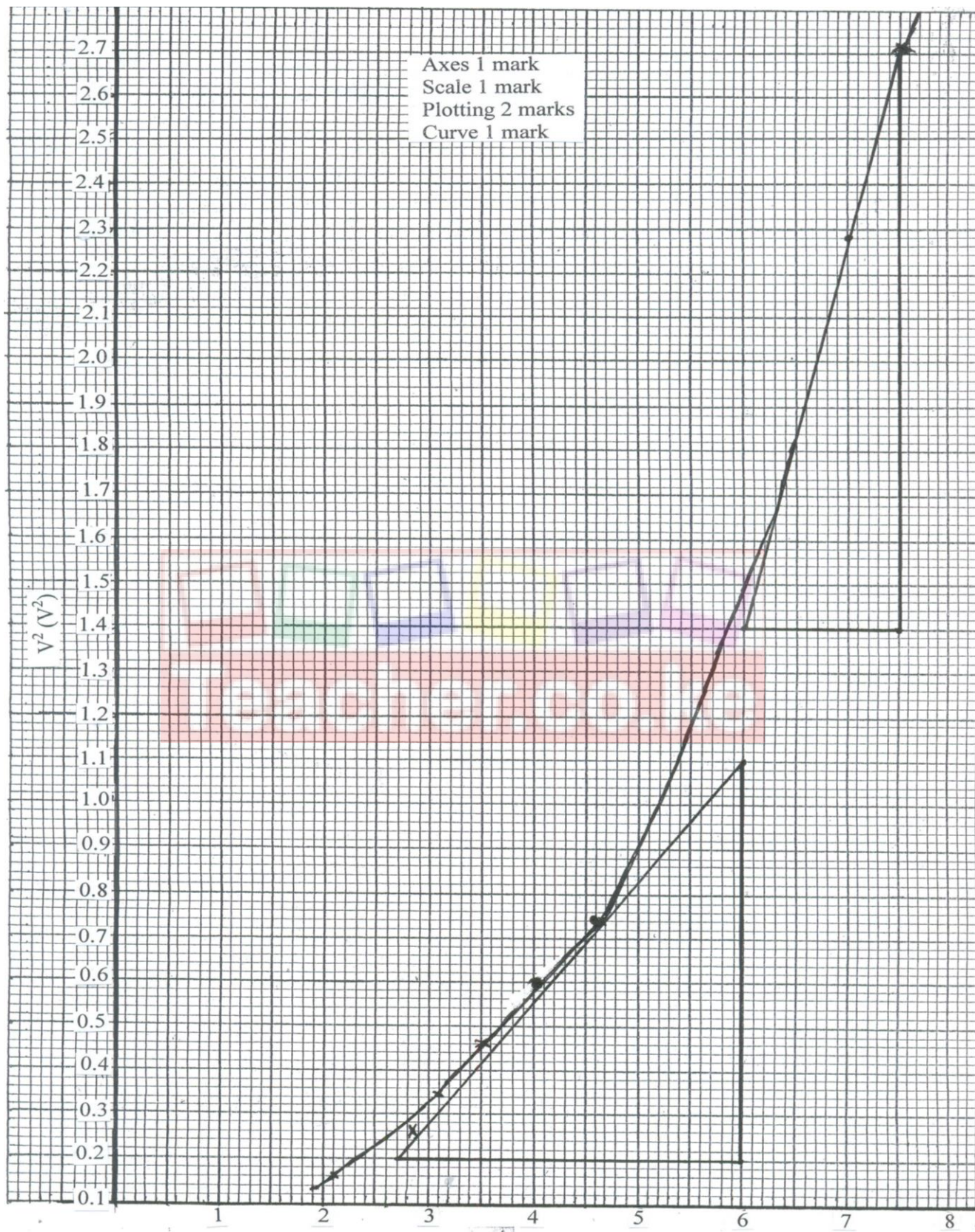
$\frac{0.98}{3.3}$ accuracy - ½ mark

              unit – ½ mark

= 0.297w $\pm$ 0.1

(f) Power of the bulb (2 marks)

Axes 1 mark
Scale 1 mark
Plotting 2 marks
Curve 1 mark

$V^2 (V^2)$

2.   (a) d = 20.0cm $\pm$ 0.5cm   (2mks)

a (cm)	30	35	40	45	50
b (cm	60.0	46.5	40.0	36.0	33.0
a + b (cm)	90.0	81.5	80.0	81.0	83.0
ab (cm^2)	1800	1627.5	1600	1620	1650

b values + 0.5cm

all correct 3 marks

at least 4 correct 2 marks

at least 2 correct 1 mark

a + b values

all correct 2mks

at least 3 correct 1 mark

ab values

all correct 2 marks

at least 3 correct 1 mark

(d) S = $\underline{90 - 80}$ correct intervals 1mark

    1800 – 1600   evaluation 1 mark

    accuracy ½ mark

    $\underline{10}$ unit ½ mark

    200= 0.05cm^{-1} $\pm$ 0.01

(e) $f (a + b) = \dfrac{1}{ab}$

$f (a + b) = ab$

$a + b = \frac{1}{f} ab$

$\frac{1}{f} = 0.05$

$f = \frac{1}{0.05}$

$f = 20cm \pm 1.0$

realising that slope = $\frac{1}{f}$ 1 mark

evaluation   1 mark

accuracy   ½ mark

unit ½ mark