

232/3
PHYSICS
PRACTICAL
PAPER 3
MARKING SCHEME

Question 1

PART A

a) $d = 20 \pm 2\text{cm}$ 1mks

b) (iv) Table

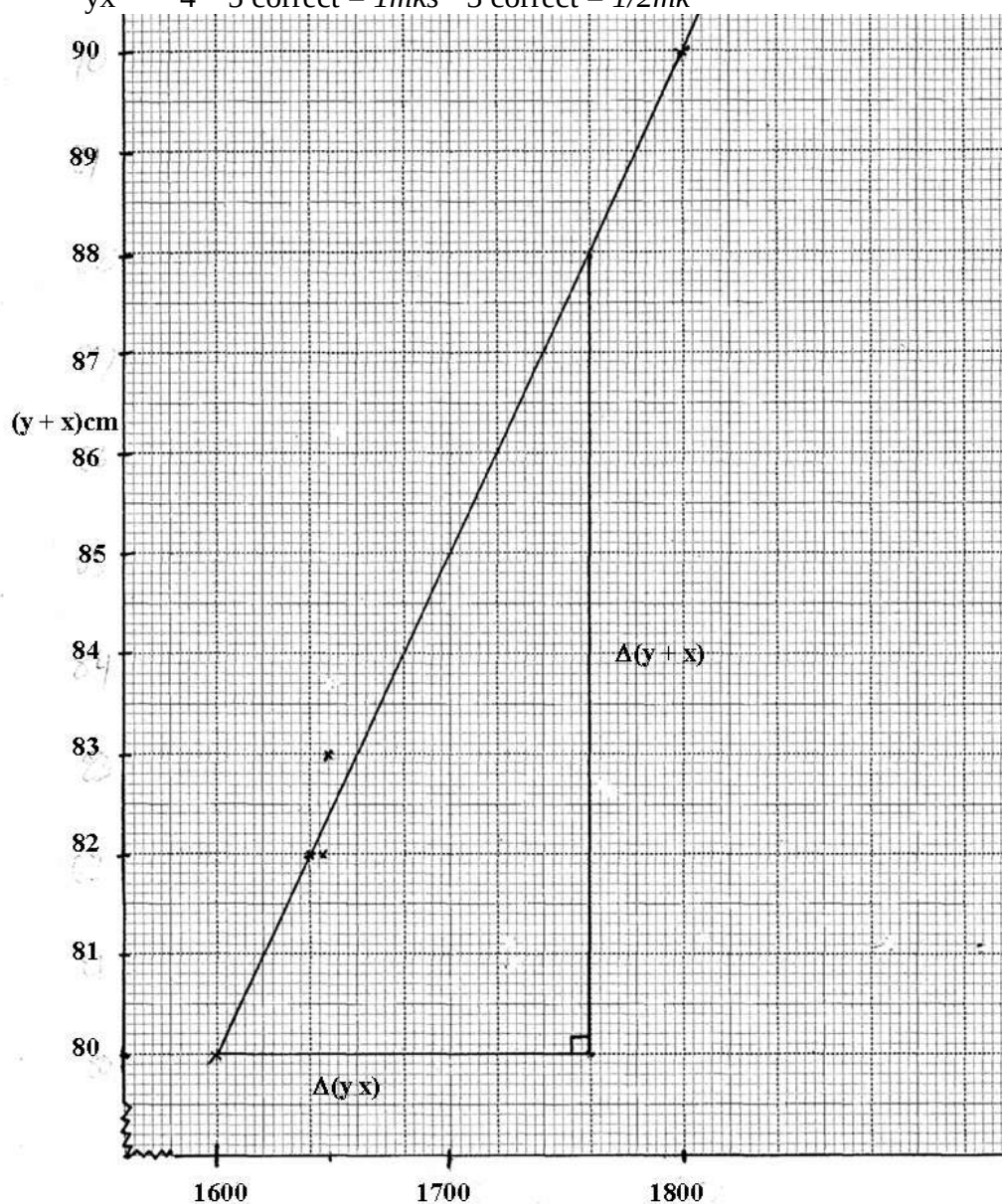
x(cm)	30	35	40	45	50
y(cm)	60	47	40	36	33
y + x (cm)	90	82	80	81	83
Yx (cm²)	1800	1645	1600	1620	1650

y each correct = 1/2mk max 2mks

y + x 4 – 5 correct = 1mks

3 correct = 1/2mk

yx 4 – 5 correct = 1mks 3 correct = 1/2mk



Simple and uniform scale = 1mk
 Plotting 4 – 5 points = 3mks
 Straight line through 4- 5 points = 1mks

d) Slope/gradient

$$\begin{aligned} \text{slope} &= \frac{88 - 80}{1760 - 1600} && \text{intervals correctly substituted} = 1mk \\ &= \frac{8}{1600} \\ &= 0.05/\text{cm} \end{aligned}$$

Correct evaluation and
Accuracy + unit = 1mk

e) f – value

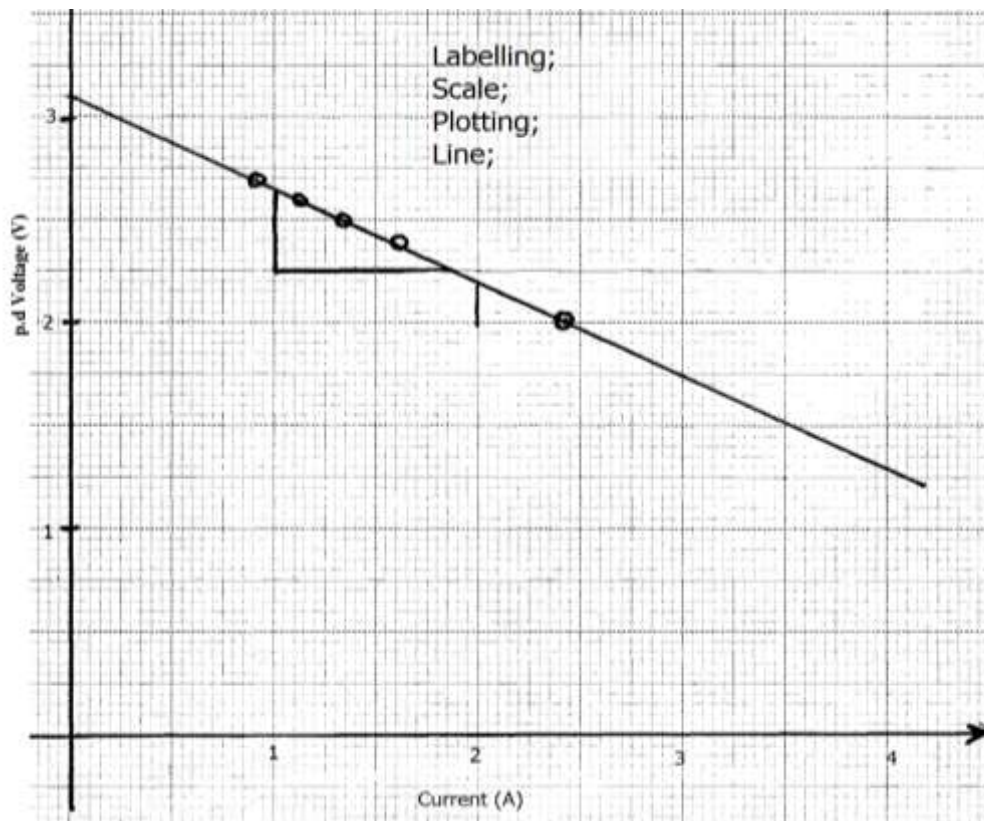
Equation of graph
 $y + x = \frac{1}{f} xy$ correct equation and equating slope to $\frac{1}{f} = 1mk$
 $\text{slope} = 0.05/\text{cm} = \frac{1}{f}$
 $\text{slope} = \frac{1}{f}$ correct evaluation
 $f = 1/\text{slope} = 1/0.05 = \underline{20\text{cm}} =$ accuracy + unit = 1mk
 $= 20\text{cm} \pm 2$

Part B

- (h) (i) $h = 14.5 \pm 1\text{cm}$ (1mk)
 (ii) $d = 4.0\text{cm} \pm 1\text{cm}$ (1mk)
 (iii) $t = h - d = 14.5 - 4.0 = 10.5\text{cm}$ (½ mk)
 (iv) $m = 45\text{g}$ (1 mk) candidates value within range of 35 – 55g
 (v) $D = 2.45\text{cm} \pm 0.1\text{cm}$ (1 mk)
 (vi) $R = \frac{D}{2} = \frac{2.45}{2} = 1.225\text{cm}$ follow candidates work (½ mk)
 (vii) $45 = \rho \times 3.142 \times (1.225)^2$ 1mk
 $\rho = \frac{45}{4.715}$
 $= 9.54\text{g}/\text{cm}^3$ 1mk

Length (cm)	75	60	45	30	15	0
p.d(V)	2.7	2.6	2.5	2.38	1.9	1.1
Current I (A)	0.9	1.1	1.3	1.60	2.45	2.5

each correct ½ mk (max 4mks)



vi)
$$\text{Slope} = \frac{2.65 - 2.25}{1 - 1.8}$$
$$= \frac{0.4}{-0.8}$$
$$= -0.5;$$

vii)
$$V = E - Ir$$
$$V = -Ir + E;$$
$$R = 0.5\Omega;$$

viii) V– intercept 3.1V ;

b) i)
$$V = 2.4V$$
$$I = 0.8A$$

ii)
$$R = \frac{V}{I} = \frac{2.4V}{0.8A};$$
$$= 3\Omega;$$