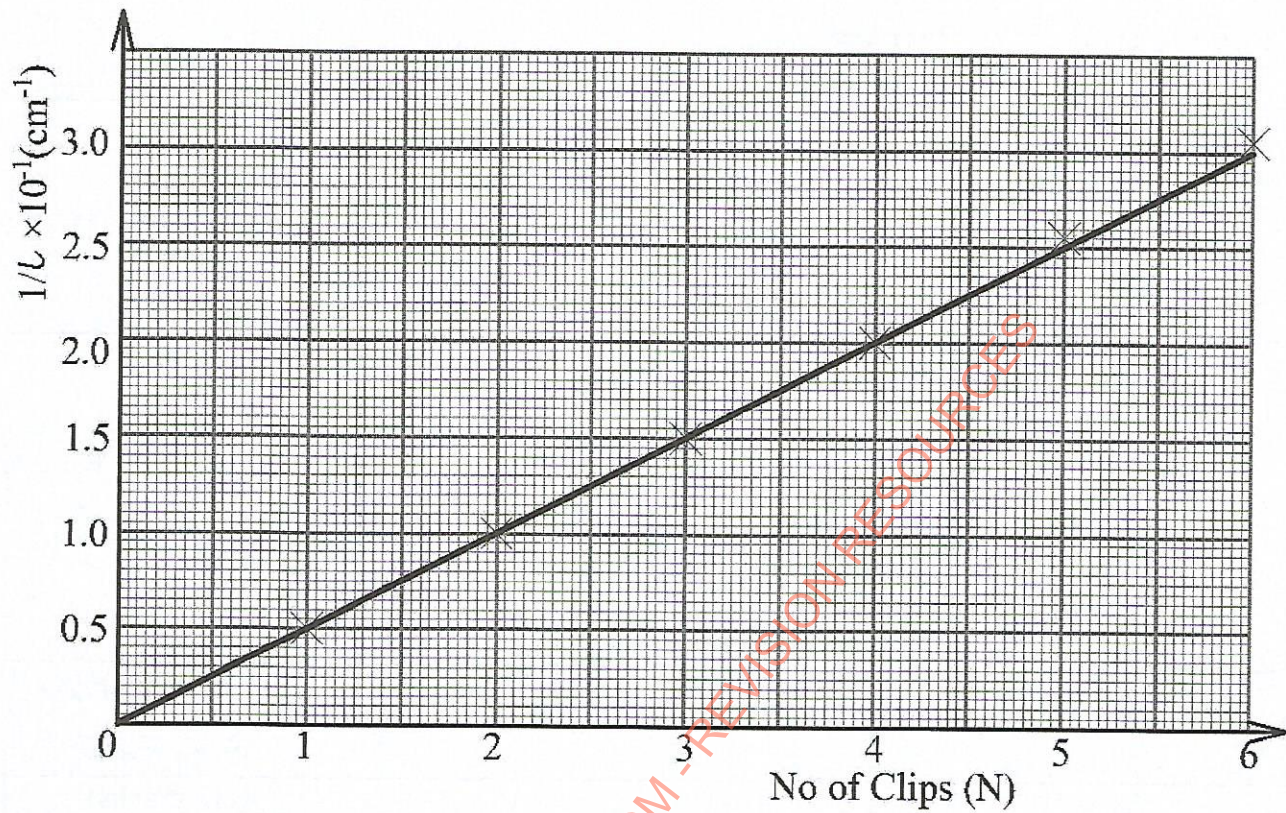


4.6.3 Physics Paper 3 (232/3)

1. a)	$V = 3.4 \text{ cm}^3 \pm 0.2$							(1 mark)
b)	$C = 25.3 \text{ cm} \pm 0.1$							(1 mark)
c)	$X = 2.2 \text{ cm} \pm 0.1$							(1 mark)
d)	(i) $10 \times 2 = mx \ 2.2$ $M = \frac{m}{v} \frac{10 \times 2}{2.2}$ $= 9.1 \text{g} \pm 1$							(2 marks)
	(ii) $\rho = \frac{m}{v}$ $= \frac{9.1}{3.4}$ $= 2.68 \text{ gcm}^{-3}$							(2 marks)
f)	Number of clips N	1	2	3	4	5	6	(4 marks)
	CM mark of P cm	45	35.2	32.1	30.2	29.2	28.5	
	Distance L = CP (cm)	19.7	9.9	6.8	4.9	3.9	3.2	
	$\frac{l}{l} \ \frac{l}{l} = \text{cm}^{-1}$	0.05	0.10	0.15	0.20	0.26	0.31	

h.



<p>i)</p>	$\left(\frac{2.0-1.0}{4-2}\right) \times 10^{-1}$ <p>Slope S = $= \frac{1}{2} \times 10^{-1}$ $= 0.05$</p> $\left(\frac{2.0-1.0}{4-2}\right) \times 10^{-1}$ $= \frac{1}{2} \times 10^{-1}$ $= 0.05$	<p>(3 marks)</p>
<p>j)</p>	$\frac{1}{l} = 0.05 \text{ kN}$ $\frac{1/l}{N} = 0.05 \text{ k}$ $\frac{0.05}{0.05} = k$ $k = 1$	<p>(2 marks)</p>

QUESTION 2

PART A MARKING SCHEME

a)	$d = 0.36 \text{ mm} \pm 0.05$ $= 3.6 \times 10^{-4} \text{ m}$	(1 mark)
b)	(i) $V_1 = 1.7 \text{ V} \pm 0.2$	(1 mark)
	(ii) $I = \frac{V}{R}$ $= \frac{1.7}{10}$ $= 0.17 \text{ A}$	(2 marks)
c)	(i) $V_2 = 1.0 \text{ V} \pm 0.2$	(1 mark)
	(ii) $R = \frac{V}{I}$ $= \frac{1}{0.17}$ $= 5.88 \Omega$	(2 marks)
	(iii) $K = 5.88 \times 2$ $= 11.76 \Omega \text{m}^{-1}$ Or $\frac{5.88}{0.5} = 11.76 \Omega \text{m}^{-1}$	(1 mark)
	(iv) $Q = \pi \frac{Kd^2}{4}$ $= \pi \frac{11.76 \times (3 \times 10^{-4})^2}{4}$ $= 119.7 \times 10^{-8}$	(2 marks)

PART B

d)	(i) $W = 5.0\text{cm} \pm 0.10$	(1 mark)																				
	(ii) Area = 5×5.0 $= 25.00\text{cm}^2$	(1 mark)																				
h)	<p>Table 2</p> <table border="1"> <tr> <td>Plate separation distance(s) (cm)</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Balance Length l (cm)</td> <td>79.5</td> <td>82.4</td> <td>86.2</td> </tr> <tr> <td>Resistance $R = \left(\frac{10 \times 10^3 L}{100 - L} \right)$</td> <td>38.8</td> <td>46.8</td> <td>62.5</td> </tr> <tr> <td>Resistance per unit length $K = \frac{R}{S}$</td> <td>12.9</td> <td>11.7</td> <td>12.5</td> </tr> <tr> <td>Constant $Z = A \cdot K$</td> <td>325.73</td> <td>295.43</td> <td>315.63</td> </tr> </table>	Plate separation distance(s) (cm)	3	4	5	Balance Length l (cm)	79.5	82.4	86.2	Resistance $R = \left(\frac{10 \times 10^3 L}{100 - L} \right)$	38.8	46.8	62.5	Resistance per unit length $K = \frac{R}{S}$	12.9	11.7	12.5	Constant $Z = A \cdot K$	325.73	295.43	315.63	(6 marks)
Plate separation distance(s) (cm)	3	4	5																			
Balance Length l (cm)	79.5	82.4	86.2																			
Resistance $R = \left(\frac{10 \times 10^3 L}{100 - L} \right)$	38.8	46.8	62.5																			
Resistance per unit length $K = \frac{R}{S}$	12.9	11.7	12.5																			
Constant $Z = A \cdot K$	325.73	295.43	315.63																			
i)	$Z \text{ average} = \frac{325.73 + 295.43 + 315.63}{3}$ $= 312.26$	(2marks)																				

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