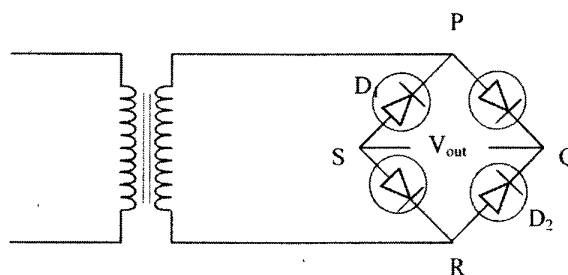


(e)



(i) Correct diode direction;

(2 marks)

(ii) Across QS;

(1 mark)

### 10.3 Physics Paper 3 (232/3)

#### 1. Part A

(a)  $E_0 = 3.0 \pm 0.2V$

(1 mark)

(d) Table 1

AO= Bo = Xcm	25	30	35	40	45	50
p.d $\sqrt{V}$	0.58	0.66	0.74	0.80	0.90	0.92
$\frac{1}{x}$ ( $\text{Cm}^{-1}$ )	0.04	0.033	0.029	0.025	0.022	0.02
$\frac{1}{V}$ ( $\text{V}^{-1}$ )	1.72	1.52	1.35	1.25	1.11	1.10

for  $V$   $\frac{1}{2}$  mark for each correct value - (3 marks)

$\frac{1}{x}$  1 mark for at least 4 correct values - (1 mark)

$\frac{1}{V}$  1 mark for at least 4 correct values - (1 mark)

(e) graph (see attached)

- axes labelled + units - (1 mark)

- suitable scale - (1 mark)

- points plotted  $\frac{1}{2}$  mark for 4 points - (2 marks)

- straight line - (1 mark)

(f) Slope - correct interval  $\frac{\Delta y}{\Delta x}$

(1 mark)

correct evaluation

(1 mark)

$S = 34 \pm 3$

(1 mark)

(g) h correctly evaluated from  $\frac{8}{E_0 S}$

substituting

(1 mark)

evaluating

(1 mark)

1 PART B

(i) OM and ON shown on outline.

(1 mark)

$$\angle M\hat{O}N = 2A = 144^\circ$$

(ii) q correctly evaluated

(1 mark)

Total (19 marks)

2. PART A

(a)  $M_1 = 53.5\text{g}$

(1 mark)

(b)  $M_2 = 73.0\text{g}$

(1 mark)

(c) Correct mass liquid L = 19.5 g.

(1 mark)

density = evaluate from candidates values of  $M_1$  and  $M_2$

PART B

(f) Table 2

Time in minutes	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5
Temperature of W( $\frac{1}{4}$ C)	80	79	77.5	76	75	74	72.5	71	70	69
Temperature of L( $\frac{1}{4}$ C)	80	76	75	72	70	68	66	64.5	62.5	61.

5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
68	67	66	65	64.5	63.5	62.5	61.5	61	60	
59										

Correct temperatures of distilled water

6 points x

(3 marks)

5 to 9 points

(1 mark)

Correct temperatures of L

8 and more

(3 marks)

4 to 7 points

(1 mark)

(h) Graphs (see attached graphs)

(i) - axis labelled + units

(1 mark)

- appropriate scale

- points plotted correctly

6 correct points

(2 marks)

3- 5 correct points

(1 mark)

- smooth curve

(1 mark)

(ii) - points plotted correctly

	- 6 correct points	(2 marks)
	- 3 - 5 correct points	(1 mark)
	- smooth curve points	(1 mark)
(i)	(i) (value obtained from the graph	(1 mark)
	(value obtained from the graph	(1 mark)
(j)	$r = \frac{4.2 \times 2.5}{0.78 \times 4.5}$ correct evaluation	(1 mark)
	$r = 3.0 \pm 0.1$	(1 mark)
	Total	(20 marks)