5.4.3 Physics Paper 3 (232/3)

(a)	(i) $I = 0.34 \ V = 2.3$								(1 mark)
	(ii) $R = \frac{2.3}{0.34}$ $= 6.76\Omega \checkmark$								(1 mark)
(c)	Table 1							(8 marks	
	Temperature of water (°C)	80	75	70	65	60	55		
	T (K)	353	348	343	338	333	328		
	Current I (A)	0.76	0.72	0.68	0.64	0.60	0,56	//	
	Potential difference V (V)	1,40	1.50	1.55	1,60	1.70	1.8	11	
	Resistance $R = \frac{V}{I}(\Omega)$	1.84	2,08	2.28	2.50	2.83	3.21	11	
	Log R (3 decimal places)	0.265	0,318	0.358	0,398	0.452	0.507	'	
	Log T (3 decimal places)	2.548	2.541	2.535	2.528	2.522	2.516	1	
(e)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	, s	,	, ,	Log T	> -10			(4 marks
	(ii) Slope S = $\frac{(-5.5)}{2.5}$ = $\frac{1.5 \times 1}{0.0}$		10 1 ×						(3 marks
	=-0.78						61.11		

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(f)	(i)	Log R = Log K + nLogT $n = gradient$	(1 mark)
		= −0.78 ✓	
	(ii)	Log K = y-intercept	
		$K = \frac{1}{100} = $	(2 marks
		Log K = 0.63 K = antlog of 0.63	
		K = 4.265 = 4.3 ✓	

QUESTION 2 PART A MARKING SCHEME

a)	Centimeter mark = 50.1cm	*	(1 mark)
b)	(i) d = 11.3 cm	_	(1 mark)
c)	$d = 0.113m$ (i) $V = 17cm^3$		(1 mark)
	(ii)		(1 mark)
	$V_1 = 19.5 \text{cm}^3$ $d_1 = 10 \text{cm}$	·	(1 mark)
	(iii) (l) Volume of water displaced $V = V_1 - V$ $= 19.5 - 17$		(1 mark)
	= 2.5cm ³ (II) Weight of displaced water		(T mark)
	$\rho V = m $ $w = mg = 10^{3} x 10x 2.5 N \checkmark$		2 marks
	$=2.5x10^{-2}$ N \checkmark		3 marks

d)	(i) W x 0.3 = 0.5 x 0.1 ✓	
	W = 0.166	
	= 0.17 N 🗸	(2 marks)
	(ii) N = mg	
	$\frac{20}{1000}x10 = 0.2N \checkmark$	(1 mark)
	(iii)Loss in weight = $0.2 - 0.17$	(1 mark)
	= 0.03 N ✓	
11	Total	13 marks

PART B

e)	(i) When U = 15		(1 mark)
	V = 42	·	
	(ii) $M_1 = \frac{42}{15}$		
	= 2.8	1	(1 mark)
	(iii) $f_1 = \frac{2.8x15}{2.8+1} = 11.05$		(1 mark)
f	(i) When U = 18		(1mark)
	$V = 29$ (ii) $M_2 = \frac{29}{18}$	✓	
	= 1.6	·	(1 mark)
	(iii) $f_2 = \frac{1.6x18}{1.6+1}$		
	= 11.08	✓	(1 mark)
g	Average $f = \frac{11.05 + 11.08}{2}$		
	= 11.1	✓	(1 mark)
			Total 7 marks