Solution for Paper 1 MCQ

1	B	11	**D**
2	C	12	B
3	B	13	C
4	B	14	A
5	A	15	A
6	A	16	A
7	D	17	D
8	A	18	A
9	C	19	D
10	A	20	D

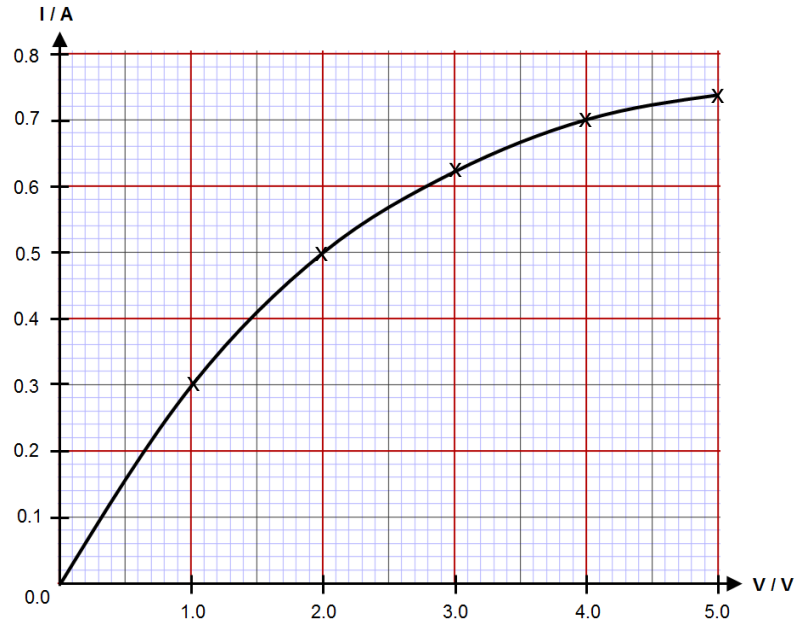
Solution for Paper 2
ECF applies
Overall 1 mark deducted if answers are given as a fraction

Section A

<table>
<tr><th colspan="2">Question</th><th>Answer</th><th>Marks</th><th>Remarks</th></tr>
<tr><td>1</td><td></td><td>
<table>
<tr><th>unit</th><th>symbol</th><th>multiple of the SI unit (J)</th></tr>
<tr><td>joule</td><td>J</td><td>1</td></tr>
<tr><td>kilojoule</td><td>kJ</td><td>1 000/10^3</td></tr>
<tr><td>gigajoule</td><td>GJ</td><td>1 000 000 000</td></tr>
<tr><td>millijoule</td><td>mJ</td><td>0.001</td></tr>
</table>
1 or 2 correct answers -> [1]
3 correct answers -> [2]
</td><td>[2]</td><td>Did not accept g</td></tr>
<tr><td>2</td><td>(a)
(b)</td><td>3
Lowest CG</td><td>[1]
[1]</td><td>Most gave 1 as the answer.

Most did not use keywords.. they preferred words like middle of the man.</td></tr>
</table>

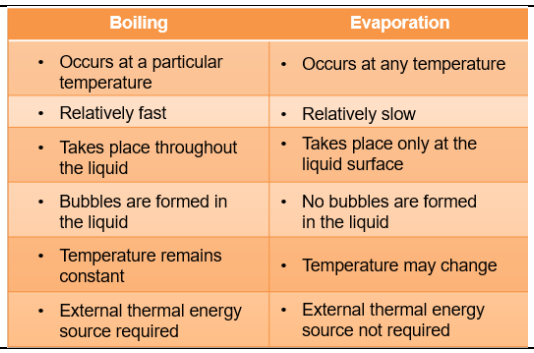
				Gave mark as long as they mentioned CG is lower.
3	(a) (b)	550 Ncm The perpendicular distance is different	[1] [1]	Generally ok. Mark awarded if student attribute to the answer to the distance. Some thought the force was different. Some tried to use GPE to explain.
4	(a)	Troughs are in the same phase	[1]	Poorly done.
	(b)	2 cm	[1]	Poorly done. Most did not know that the distance between 2 wavefronts is the wavelength.
	(c)	1 s	[1]	Poorly done.

5	(a)	 1 mark for correct points 1 mark for best fit curve	[2]	
	(b)	Accept I = 0.4 A to 0.42 A	[1]	
	(c)	When potential difference < 1V, resistance is constant OR When current < 0.3A, resistance is constant When potential difference > 1V, resistance is not constant When current > 0.3A, resistance is not constant	[1] [1]	Most students did not know that the gradient of the I/V graph gives the resistance. Must remind them to use keywords.
			Total 14	

Section B

6	(a)	speed = (2xdepth)/time 1500 = (2xdepth)/0.5 depth =375m	 [1] [1]	Most got this wrong as they used the s=d/t formula.
	(b)	echo will take less than 0.5 s OR echo take less time amplitude of echo will be larger OR peak of echo is higher	[1] [1]	A handful got this correct. Accepted much quicker/faster. Accepted louder.
	(ci)	B B has overcome greater gravitational force OR B has greater/more mass/weight	[1] [1]	A number got this correct.
	(cii)	PE = mgh = 50x10x50 = 25000J	 [1] [1]	A number got this correct.
			Total [8]	

7	(ai)	Magnitude 5N Direction LEFT	[1] [1]	Most got this right. A handful gave RIGHT as the direction.
	(aii)	F = ma 5 = 2a a = 2.5 m/s2	 [1] [1]	Most got this correct.
	(bi)	radiation	[1]	A handful wrote convection.
	(bii)	A Black is a good absorber	[1] [1]	No marks for good conductor.
		Any one..	 [1]	

				
			Total [8]	

8	(a)	**P** is connected to wire **X** **R** is connected to wire **Y**	[1] [1]	Generally ok. Accepted Live Accepted Neutral A number thought R was earth.
	(b)	fuse protects the appliance/limits current to appliance	[1] [1]	
	(c)	I = P ÷ V = 1000 W ÷ 240 V = 4.17 A	[1] [1]	A number used the wrong formula.. I/P
	(d)	Energy = 1 kW x 3 h = 3kWh Cost = 3kWh x 26 = 78cents	[1] [1]	
			Total [8]	