

Question number	Answer	Notes	Marks														
6 (a)	<p>either correct moment seen; use of principle of moments;</p> <p>correct evaluation of weight;</p> <p>e.g. $W \times 8$ OR 0.1×12 $W \times 8 = 0.1 \times 12$ ($W =$) 0.15 (N)</p>	<p>seen mathematically or in writing e.g. 'clockwise moment = anticlockwise moment'</p> <p>answer of 0.25 (N) gets 2 marks</p> <p>allow 0.2 (N) if supported by correct working</p>	3														
(b)	<p>coil becomes an electromagnet / coil produces a magnetic field; coil {attracts / exerts a force on} magnet; increasing anti-clockwise moment;</p>	<p>allow current for coil</p> <p>reject if repulsion mentioned allow creating (additional) anti-clockwise moment</p>	3														
(c) (i)	<p>sensible linear scales on both axes that occupy >50% of the grid; both axes labelled correctly with quantity and unit; correct orientation; all 6 points correctly plotted;</p> <div></div>	<p>allow symbols I for current and W for weight current on x-axis reject plotting mark if non-linear scale used in region of plots</p> <table><thead><tr><th>Current in A</th><th>Total weight added in N</th></tr></thead><tbody><tr><td>0.0</td><td>0.1</td></tr><tr><td>0.1</td><td>0.5</td></tr><tr><td>0.5</td><td>2.1</td></tr><tr><td>0.7</td><td>2.5</td></tr><tr><td>0.9</td><td>3.7</td></tr><tr><td>1.1</td><td>4.5</td></tr></tbody></table>	Current in A	Total weight added in N	0.0	0.1	0.1	0.5	0.5	2.1	0.7	2.5	0.9	3.7	1.1	4.5	4
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(ii)	<p>straight line of best fit avoiding anomalous reading;</p>		1														
(iii)	<p>(repeat to) check accuracy / validity of reading; (because) reading appears to be anomalous;</p>	<p>allow idea of checking to see if same reading obtained again allow reading does not follow the trend / does not lie near the line of best fit</p>	2														

(iv)	pattern statement e.g. as current increases the force increases; suitable comment about linearity;	ignore references to weight allow (directly) proportional	2
(v)	relevant use of one set of data from graph or table; 8.1 (N);	exclude data from 0.7A reading allow ecf from line on graph allow answers that round to 8.1 (N)	2

Total for question 6 = 17 marks