

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
(i)	substitution of values (1) $1.2 = \frac{K}{4(.0)^2}$ rearrangement and evaluation (1) (K=) 19 unit (1) N cm ²	allow rearrangement before substitution (K=) $1.2 \times 4(.0)^2$ 19.2 0.00192 award full marks for the correct answer without working independent mark N m ²	(3) AO2
Question number	Answer	Additional guidance	Mark
(ii)	same magnitude and opposite direction (1)	allow (now) attraction for opposite direction	(1) AO1

Q2.

Question number	Answer	Additional guidance	Mark
(i)	substitution of values (1) $1.2 = \frac{K}{4(.0)^2}$ rearrangement and evaluation (1) (K=) 19 unit (1) N cm ²	allow rearrangement before substitution (K=) 1.2 x 4(.0) ² 19.2 0.00192 award full marks for the correct answer without working independent mark N m ²	(3) AO2
Question number	Answer	Additional guidance	Mark
(ii)	same magnitude and opposite direction (1)	allow (now) attraction for opposite direction	(1) AO1

Q3.

Question number	Answer	Additional guidance	Mark
	<p>substitution into correctly rearranged equation (1)</p> $I = \frac{F}{B} \times l$ $= \frac{0.089}{0.47} \times 0.713$ <p>evaluation to 2 s.f. (1) current = 0.27 (A)</p>	<p>give full marks for correct numerical answer without working</p>	<p>(2)</p>

Question number	Answer	Additional guidance	Mark
a	<p>recall and substitution (1)</p> <p>(force x 12.0 =) 0.050 x 8.4</p> <p>rearrangement (1)</p> $\text{(force =) } \frac{0.050 \times 8.4}{12.0}$ <p>evaluation (1)</p> <p>(force =) 0.035 (N)</p>	<p>allow substitution and rearrangement in either order</p> <p>award full marks for the correct answer without working.</p> <p>if no other marks scored then award 1 mark for answers that round to 29 (eg 28.57) (substitution mark)</p>	(3) AO2
Question number	Answer	Additional guidance	Mark
b	<p>a description to include four of the following</p> <p>measure the value of current (1)</p> <p>measure force or distance(1)</p> <p>vary the current (1)</p> <p>restore equilibrium of system (1)</p> <p>calculate ratio between force and current or distance and current (1)</p> <p>if ratio is the same then they are proportional (1)</p>	<p>accept calculate for measure</p> <p>increase weight or move (existing) weight to new position</p> <p>plot a graph of force / distance against current</p> <p>graph would be a straight line (through the origin)</p>	(4) AO3