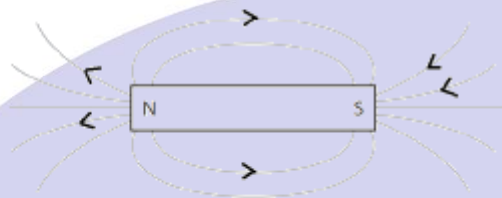


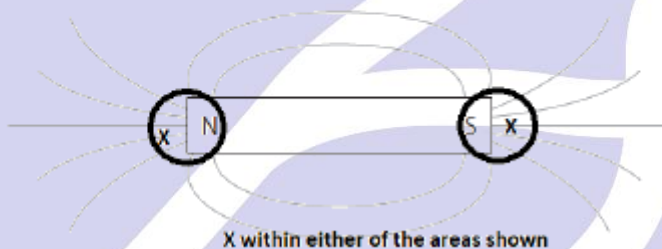
Mark Scheme

Q1.

Question number	Answer	Additional guidance	Mark
(i)	consistent arrows showing magnetic field direction(s) (1)	arrows showing direction out of N, towards and into S minimum of two arrows all arrows shown must be in the correct direction	(1) AO1.2

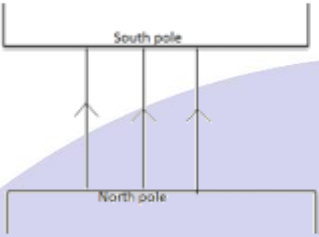


Question number	Answer	Additional guidance	Mark
(ii)	'X' placed just/immediately to the left of the N pole or just/immediately to the right of S pole (1)	allow on the letters N or S do not allow further inside the magnet	(1) AO1.1

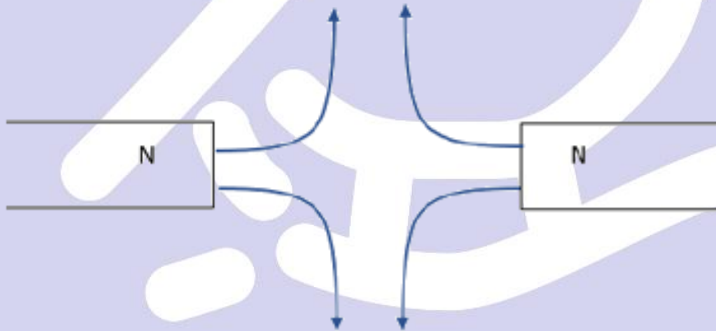


Question number	Answer	Additional guidance	Mark
(iii)	<p>A description to include any two from:</p> <p>(in comparison with bar magnet's field shown the uniform field has:)</p> <ol style="list-style-type: none"> 1. only one direction (1) 2. straight lines (1) 3. parallel lines (1) 4. equidistant lines (1) 5. same strength of field everywhere (1) 	<p>(in comparison with uniform field the bar magnet's field lines:)</p> <p>vary in direction</p> <p>curved lines</p> <p>converge / diverge</p> <p>vary in distance(s) apart / gap</p> <p>vary in strength of field</p> <p>if no other mark is awarded, credit any diagram showing a uniform magnetic field for 1 mark</p>	<p>(2)</p> <p>A03.2</p>

Q2.

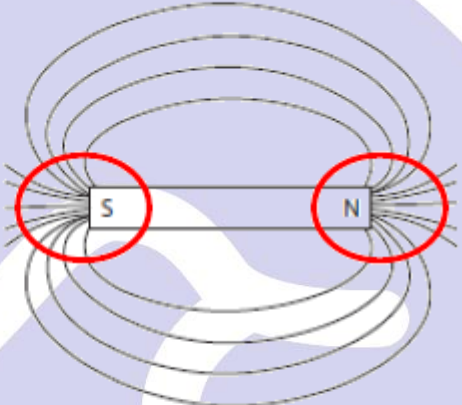
Question Number	Answer	Additional guidance	Mark
	 <p>MP1: any (vertical) line from pole to pole (1)</p> <p>MP2: at least two further equidistant straight, (vertical) lines from pole to pole (1)</p> <p>MP3: arrow on any line, north to south (1)</p>	<p>ignore lines outside of the magnets for MP1 and MP2</p> <p>judge by eye</p> <p>any arrow south to north, no mark awarded for MP3</p>	(3)

Q3.

Question number	Answer	Additional guidance	Mark
	<p>at least four lines as shown (1)</p> <p>at least two arrows directed away from N poles (1)</p> 	<p>lines must not intersect (cross over)</p> <p>ignore continuation of lines to S of a magnet</p> <p>independent mark</p> <p>do not award if one or more arrows shown pointing towards N pole</p>	<p>(2) AO1</p>

Q4.

Question	Answer	Additional guidance	Mark
(i)	arrow(s) going from N to S on any field line (1)	any contradictory arrow loses the mark	(1) AO1.1

Question	Answer	Additional guidance	Mark
(ii)	X drawn close to N or S (1)	 <p>any X drawn outside either ellipse loses the mark - judge by eye</p>	(1) AO1.1

Question	Answer	Additional guidance	Mark
(iii)	<p>one reason from:</p> <p>where the (field) lines are close(st) (to each other) (1)</p> <p>close to the pole(s) (1)</p>	<p>accept where there are most lines</p> <p>ignore close to the magnet</p>	(1) AO1.1

Q5.

Question number	Answer	Mark
(a)	D	(1)

Question number	Answer	Mark
(b)	C	(1)

