

Question Number	Answer	Mark
12(a)	<p>Total momentum before (a collision) = total momentum after (a collision) Or total momentum remains constant (1)</p> <p>When no external force acts Or When no resultant force acts on the system Or In a closed / isolated system (1)</p>	2
12(b)(i)	<p>Momentum is mass \times velocity and after the collision the mass (that is moving) is double the original value. (1)</p> <p>(because velocity is half its original value) momentum remains the same so the law is obeyed (dependent on MP1) (1)</p> <p>OR</p> <p>Initial momentum of A is equated to final momentum of A plus final momentum of B (1)</p> <p>Shows that MP1 is consistent with final velocity = half initial velocity and concludes that the law is obeyed (dependent on MP1) (1)</p>	2
12(b)(ii)	<p>(The gliders accelerate in opposite directions because) the magnetic forces are equal in size and opposite in direction Or (The gliders accelerate in opposite directions because) the magnetic forces form a Newton's 3rd law pair (1)</p> <p>So the velocity of one glider increases and the velocity of the other decreases (by the same amount) Or So the resultant force on the system is zero Or The magnetic forces are not external forces (1)</p>	2
Total for question 12		6