



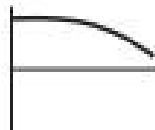



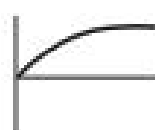
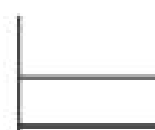
Question 7

(5 marks)

Students in a physics laboratory launch plastic discs across an aluminium air table. Air is blown vertically through small holes in the surface of the table, allowing the discs to float above the surface as they move. This is a nearly frictionless environment and the discs barely slow down as they cross the table. The students then attach a small but strong magnet on top of a disc and repeat the experiment. The disc slows down quite quickly, even though there is still no contact between it and the table.

- (a) Explain why the disc with the magnet slows down quickly. (4 marks)

- (b) The students deduce that the retarding force on the disc with the magnet is proportional to the speed of the disc. Which set of velocity and acceleration versus time graphs below best describe the motion of the disk with the magnet? (1 mark)

A	B	C	D
<p>Velocity</p>  <p>Time</p>	<p>Velocity</p>  <p>Time</p>	<p>Velocity</p>  <p>Time</p>	<p>Velocity</p>  <p>Time</p>
<p>Acceleration</p>  <p>Time</p>	<p>Acceleration</p>  <p>Time</p>	<p>Acceleration</p>  <p>Time</p>	<p>Acceleration</p>  <p>Time</p>