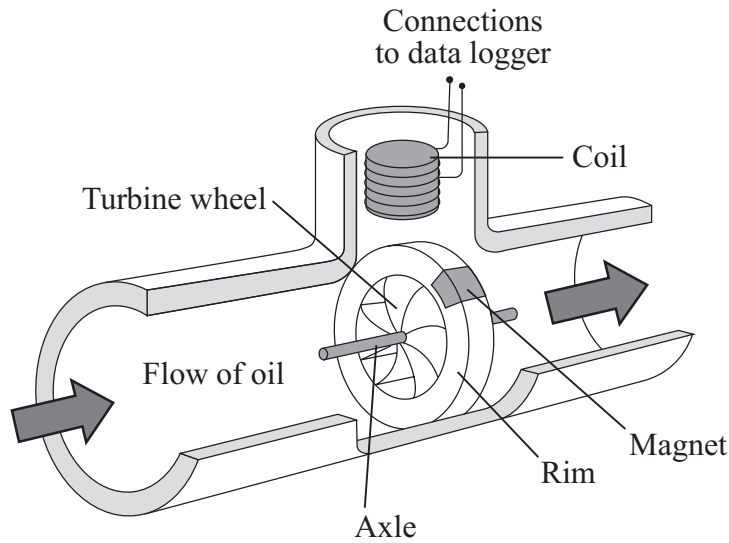


6 The diagram shows the inside of an oil pipeline and a student's design for a meter to measure the flow of oil.



As oil flows through the pipeline, the oil rotates a turbine wheel. Above the turbine wheel is a coil of wire connected to a data logger. There is a magnet in the rim of the turbine wheel. The turbine wheel spins and this induces a varying potential difference (p.d.) across the ends of the coil. This varying p.d. is recorded by the data logger.

6 (a) Complete the sentence by writing in the space.

The faster the oil flows through the pipeline, the .....  
the maximum p.d. across the coil.

(1 mark)

6 (b) Explain why a varying p.d. is induced across the coil even when the rate of flow of oil remains constant.

.....

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(3 marks)



**6** (c) Suggest **two** changes to the design of the meter which would increase the maximum p.d. across the coil for the same flow of oil.

Change 1 .....

.....

Change 2 .....

.....

*(2 marks)*

<b>6</b>

**Turn over for the next question**

**Turn over ▶**

