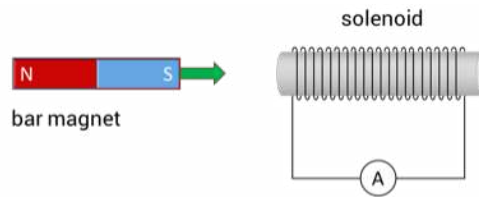


0	1
---	---

A permanent bar magnet is moved towards a solenoid which is connected to a sensitive centre-zero ammeter, as shown below.



0	1	.	1
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While the magnet is being moved towards the solenoid, the needle of the ammeter flicks one way. Explain why this happens.

[2 marks]

0	1	.	2
---	---	---	---

Write down two ways in which the needle of the ammeter could be made to flick further from its zero position.

[2 marks]

0	1	.	3
---	---	---	---

A magnetic field is generated around the solenoid while the magnet is being moved towards it. Label the north and south poles of the magnetic field around the solenoid on the above diagram using the letters **N** and **S**.

[1 mark]

0	1	.	4
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Describe the effect which the magnetic field of the solenoid will have on the motion of the magnet towards it.

[1 mark]

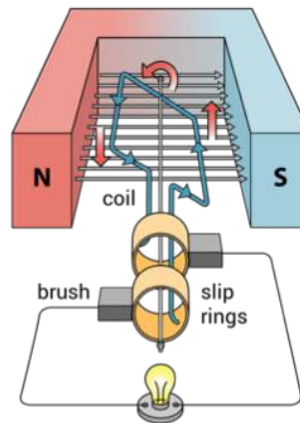
0	1	.	5
---	---	---	---

The magnet is then held at rest inside the coil. Describe and explain the effect which this will have on the ammeter reading.

[2 marks]

0 2

An alternator is being used to power a filament bulb, as shown below.



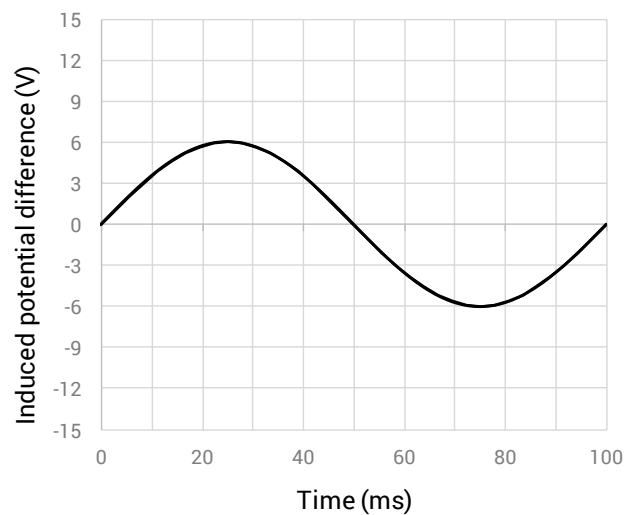
0 2 . 1

Explain the function of the slip rings in the above alternator, and how they allow for an alternating current to be supplied to the bulb.

[2 marks]

0 2 . 2

The potential difference across the bulb varies with time as shown below.



Show that the coil is rotating at a frequency of 10 Hz.

[2 marks]

0 2 . 3

On the above axes, sketch the graph which would have been obtained had the coil been rotated at a frequency of 20 Hz.

[2 marks]