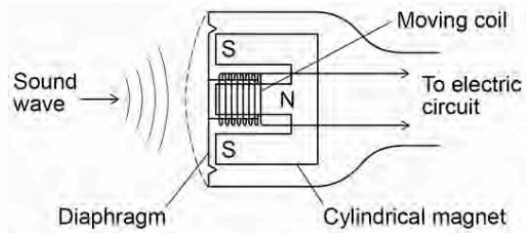


Q1.(2019)

a)

Figure 18 shows the parts of a moving-coil microphone.

Figure 18



What is the function of a microphone?

[1 mark]

b)

Explain how a moving-coil microphone works.

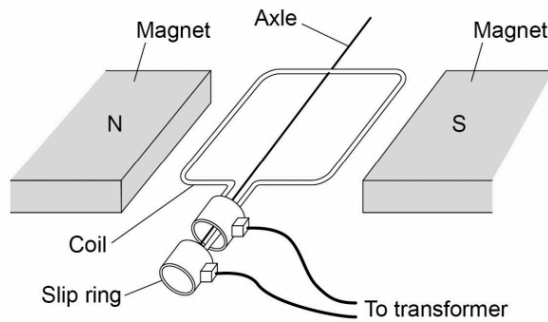
[4 marks]

Q2.(2020)

a)

Figure 11 shows the inside parts of the alternator.

Figure 11



The handle of the alternator is turned, causing the coil to rotate.

Explain why an alternating current is induced in the coil.

[5 marks]

b)

Suggest the purpose of the slip rings.

[1 mark]

c)

The alternator from the portable power supply is disconnected from the transformer and lamp.

Explain why the handle of the alternator becomes much easier to turn.

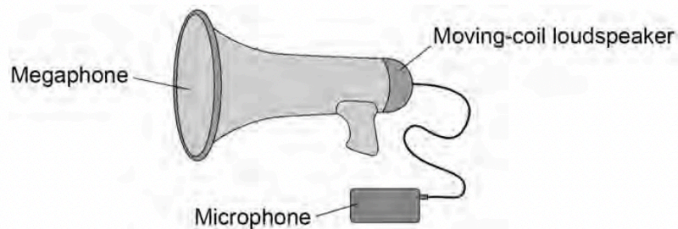
[3 marks]

Q3.(2023)

A megaphone uses a loudspeaker to amplify sounds that are detected by a microphone.

Figure 10 shows a megaphone and microphone.

Figure 10



Complete the sentence.

[1 mark]

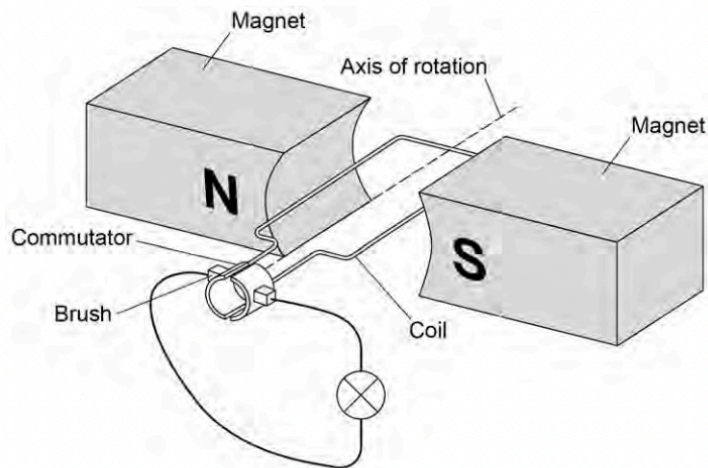
The microphone is used to convert the pressure variations in sound waves into variations in _____ .

Q4.(2023)

A dynamo is used to generate an electric current.

Figure 22 shows the inside parts of the dynamo connected to a lamp.

Figure 22



The coil is rotated.

Explain why a direct current is induced in the coil.

[5 marks]

Q5.(2023)

a)

Sketch a graph on **Figure 23** to show how the potential difference generated across the lamp varies for **two** complete revolutions of the dynamo coil.

[1 mark]

Figure 23



b)

The lamp is disconnected from the dynamo.

Explain why the dynamo becomes much easier to turn.

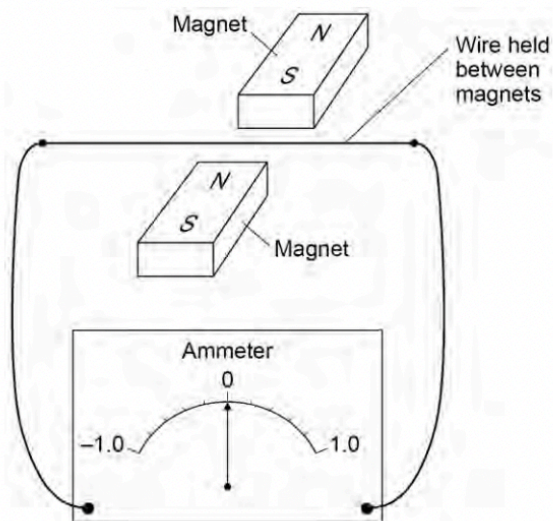
[3 marks]

Q6.(2024)

a)

Figure 13 shows some apparatus used by a teacher in a demonstration.

Figure 13



The teacher moved the wire upwards between the magnets.

The needle on the ammeter deflected to a value of +0.4 mA and then returned to zero.

What effect did this demonstrate?

[1 mark]

b)

Explain why a current was detected when the wire in **Figure 13** was moved upwards.
[3 marks]

c)

The teacher reversed the direction of the magnetic field.

The teacher replaced the wire in its original position.

The teacher moved the wire upwards in the same way as before.

What was the deflection of the needle on the ammeter?

[1 mark]

Tick (✓) **one** box.

The needle will deflect to -0.4 mA.

☐

The needle will not move.

☐

The needle will deflect to $+0.4$ mA.

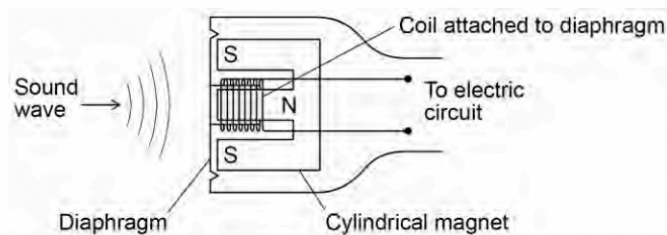
☐

Q7.(2024)

Figure 14 shows a sound wave incident on the diaphragm of a moving-coil microphone.

The inside of the microphone includes a small coil of wire and a magnet.

Figure 14



Explain why the sound waves have an effect on the electric circuit.

[3 marks]
