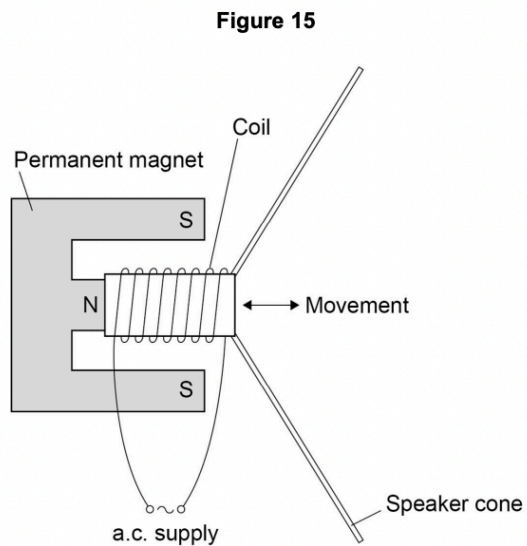


Q1.(2021)

a)

A student made a moving-coil loudspeaker.

Figure 15 shows a diagram of the loudspeaker.



What is the name of the effect used by the moving-coil loudspeaker to produce sound waves?

[1 mark]

b)

Explain how a moving-coil loudspeaker produces a sound wave.

[4 marks]

c)

A student investigated how the loudness of sound from the loudspeaker depends on:

- the number of turns on the coil
- the frequency of the supply.

Table 2 shows the results.

Table 2

Number of turns	Frequency of supply in Hz	Loudness of sound in arbitrary units
100	200	32
200	400	47
300	600	63

Explain why the results **cannot** be used to make a valid conclusion.

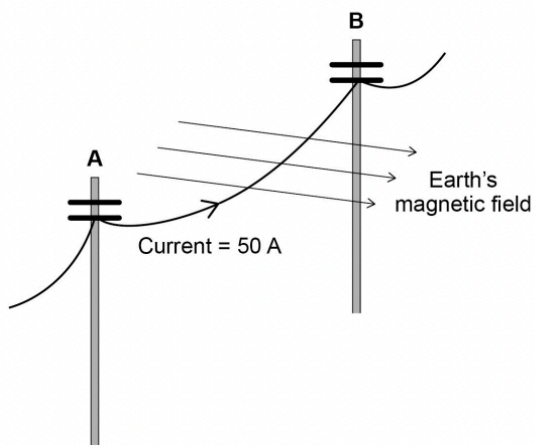
[2 marks]

Q2.(2022)

a)

Figure 13 shows a large cable supported by two wooden poles. The cable is connected to an electricity supply.

Figure 13



Subtopic: The motor effect and force on a conductor

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There is a force on the cable due to the Earth's magnetic field when the current is in the direction **A** to **B**.

What is the direction of this force?

[1 mark]

Tick (✓) **one** box.

Down ☐

Left ☐

Right ☐

Up ☐

b)

The cable experiences a force of 0.045 N due to the Earth's magnetic field.

magnetic flux density = $60 \mu\text{T}$

current = 50 A

Calculate the length of the cable between **A** and **B**.

Use the Physics Equations Sheet.

[4 marks]

Length = _____ m

c)

State **one** assumption you made in your calculation.

[1 mark]
