

# GCSE Physics

15<sup>th</sup> Mar 2021 – Left Hand Rule and Induction

Suitable for ALL exam boards



Fleming's Left Hand Rule – just make sure you use your correct hand!

Don't forget to **subscribe** on **YouTube** and turn on **notification** to be reminded about the **weekly livestreams** to support you as you prepare for any exams.

Question taken from:

**OCR A GCSE Combined – 2018 - Paper 11 H - J250/11 – Question 15**

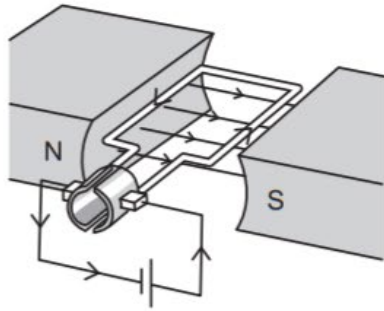
**OCR B GCSE Physics – 2018 - Breadth H - J259/03 – Question 7**

- 15 (a) (i) Fleming's left-hand rule is used to show the direction of the force produced when a current flows in a magnetic field.

Explain how.

.....  
.....  
.....  
..... [3]

- (ii) A simple motor is shown in the diagram.



Use the diagram to explain how rotation is caused in the motor.

.....  
.....  
.....  
..... [3]

- (b) Calculate the magnetic flux density on a 0.5m long conductor when a current of 0.8A flows.

The force produced is 0.6N.

Answer = ..... T [3]



7 Ali investigates electromagnetic induction.

He pushes a magnet quickly into a coil of wire. He uses an ammeter to record the biggest current produced in the coil.

He repeats the experiment for coils with different numbers of turns.

Table 7.1 shows his results.

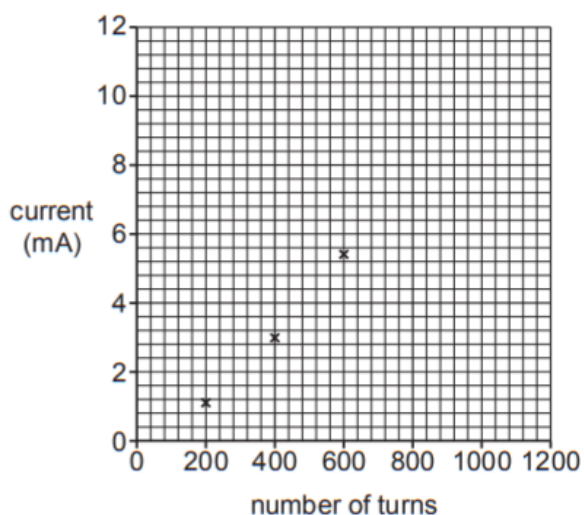
Number of turns	Current (mA)
200	1.1
400	3.0
600	5.4
800	6.7
1000	9.1
1200	11.0

Table 7.1

(a) Explain why a current is produced in the coil.

.....  
.....  
..... [2]

(b) (i) Complete the graph by plotting the missing results in Table 7.1 and draw a line of best fit.



[2]



- (ii) Use your line of best fit to determine the maximum current that Ali could produce if he used a coil with **700 turns**.

Maximum current = ..... mA **[1]**

- (iii) Amaya says that this experiment is not valid because the speed of the magnet may be different each time.

Suggest how Ali could control the speed of the magnet.

.....  
..... **[1]**

- (c) As Ali pushes the magnet towards the coil, he feels a small repulsive force.

Explain why.

.....  
.....  
.....  
..... **[2]**

