



PHYSICS

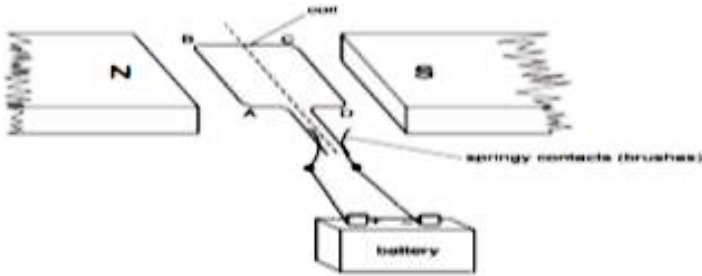
BOOKS - CBSE MODEL PAPER

SAMPLE PAPER 2022 TERM II

Section A

1. A simple motor is made in a school laboratory. A coil of wire is mounted on an axle between the poles of a horseshoe magnet, as

illustrated.



In the example above, coil ABCD is horizontal and the battery is connected as shown.

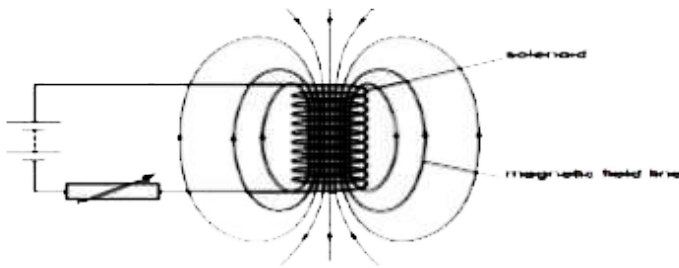
a. For this position, state the direction of the force on the arm AB.

b. Why does the current in the arm BC not contribute to the turning force on the coil ?



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2. A circuit contains a battery, a variable resistor and a solenoid. The figure below shows the magnetic field pattern produced by the current in the solenoid.



- State how the magnetic field pattern indicates regions where the magnetic field is stronger.
- What happens to the magnetic field when the current in the circuit is reversed ?



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Section B

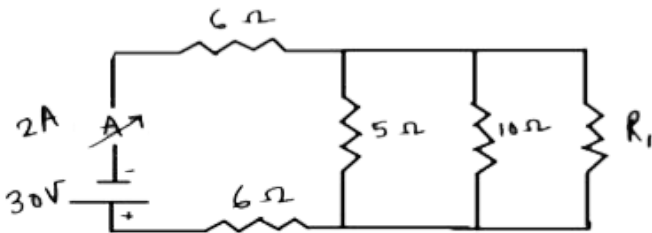
1. a. It would cost a man Rs. 3.50 to buy 1.0 kW h of electrical energy from the Main Electricity Board. His generator has a maximum power of 2.0 kW. The generator produces energy at this maximum power for 3 hours.

Calculate how much it would cost to buy the same amount of energy from the Main Electricity Board.

b. A student boils water in an electric kettle for 20 minutes. Using the same mains supply he wants to reduce the boiling time of water. To do so should he increase or decrease the length of the heating element? Justify your answer.

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2.

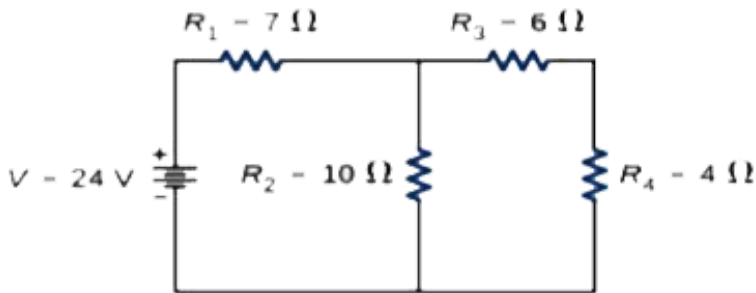


In the above circuit, if the current reading in

the ammeter A is 2A, what would be the value of R_1 ?



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3.

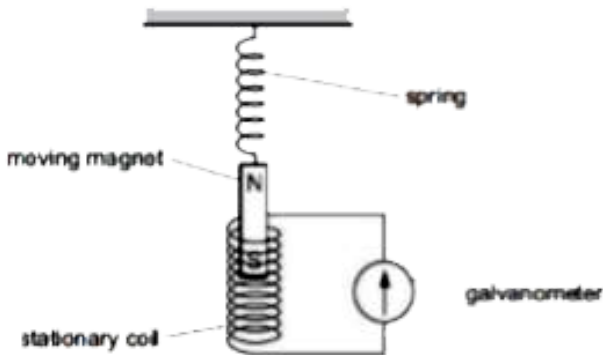
Calculate the total resistance of the circuit and find the total current in the circuit.



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Section C

1. Ansari Sir was demonstrating an experiment in his class with the setup as shown in the figure below.



A magnet is attached to a spring. The magnet can go in and out of the stationary coil. He lifted the Magnet and released it to make it

oscillate through the coil. Based on your understanding of the phenomenon, answer the following questions.

a. What is the principle which Ansari Sir is trying to demonstrate?

b. What will be observed when the Magnet starts oscillating through the coil. Explain the reason behind this observation.

c. Consider the situation where the Magnet goes in and out of the coil. State two changes which could be made to increase the deflection in the galvanometer.



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2. Is there any difference in the observations in the galvanometer when the Magnet swings in and then out of the stationary coil ? Justify your answer.



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