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DAY GROUP CERTIFICATE EXAMINATION, 1968

MAGNETISM AND ELECTRICITY

MONDAY, 14th JUNE - 10 a.m. to 12 noon

INSTRUCTIONS

Not more than five questions to be attempted.

All the questions carry equal marks.

Illustrate your answers with sketches and diagrams where possible.

1. (a) Draw on the diagram provided, the magnetic field around the horse-shoe magnet in Fig. 1.
(b) State and explain briefly two methods by which a magnet can be demagnetised.
2. (a) A compass needle is placed just below a long straight conductor which is placed in a north-south direction. If an electric current is allowed to flow in (a) a N - S direction, (b) a S - N direction, state, with explanation, what happens to the compass needle.
(b) Explain with diagrams the working of a moving coil ammeter.
3. The magnet, in Fig. 2, is turned through 1 complete revolution in the direction shown. State and explain what changes take place in the coil of wire. State any law on which these changes depend and explain any practical application of this law.
4. Answer briefly any five of the following:-
 - (a) What is the resistance of a 200 volt 25 watt lamp?
 - (b) Explain (i) Polarisation, (ii) Local action in cells.
 - (c) What is magnetic screening?
 - (d) Explain what is meant by (i) Anode, (ii) Cathode, (iii) Electrolyte, (iv) Electrolysis.
 - (e) Why is soft iron used in the cores of transformers?
 - (f) Why are fuses fitted in houses?
5. What is meant by the Resistivity (Specific Resistance) of a conductor? Explain how the Resistivity of a piece of wire can be measured.
The Resistance of a coil of wire 1000 metres long and 0.1 sq. cms. cross-sectional area, is 16 ohms. What is the resistance of a piece of the same wire 2500 metres long and 0.01 sq. cms. in cross-sectional area.
6. What is the main difference between Primary and Secondary Cells? Describe how a Secondary cell is charged and how the state of the cell can be tested.
The E.M.F. of a cell is 2 volts. Its P.D. is 1.6 volts when it is delivering a current of 4 amps. Find the internal resistance of the cell.
7. Define the Coulomb, the Joule and the Watt.
Find the cost of heating 50 gallons of water from 20°C to 100°C using a 2000 watt heater if the electricity costs 6d. per unit.
Assume all heat generated is used to heat the water.
 - 1 gallon of water weighs 4536 grams.
 - 1 Calorie = 4.2 joules.

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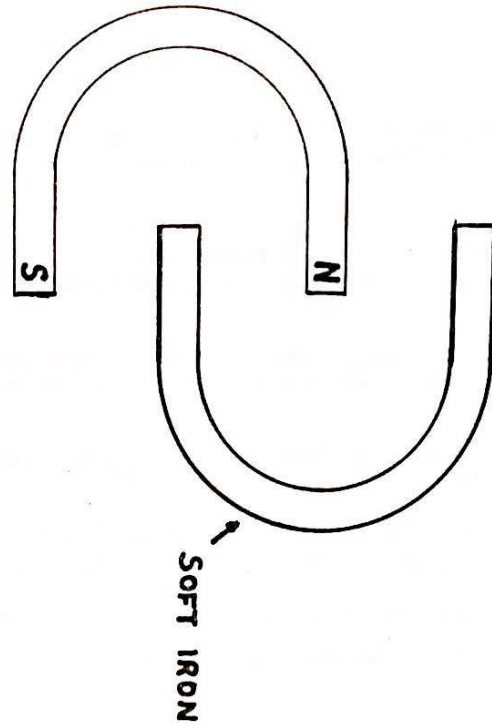


Fig. 1.

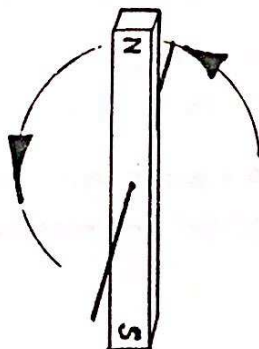
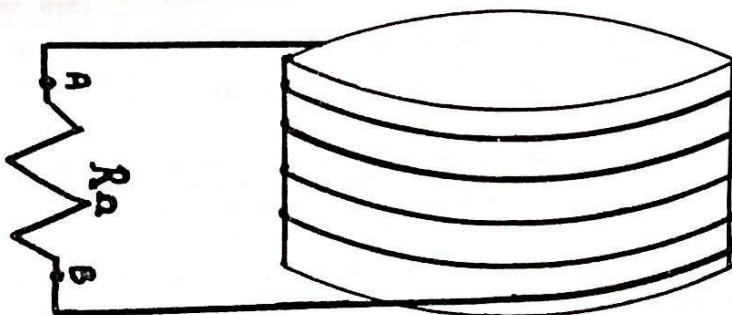


Fig. 2.