

CLASS 8

SCIENCE

EXTRA QUESTIONS

Extra Questions: Class 8 Science Chapter 4 Electricity Magnetic and Heating Effects

Practice questions beyond the textbook exercise, testing deeper understanding of the magnetic and heating effects of electric current for Class 8 Science Chapter 4.

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1 (Assertion-Reason). Assertion: Reversing the current in an electromagnet reverses its poles. Reason: The direction of a magnetic field around a conductor depends on the direction of current flow.

Solution: Both true, and the reason correctly explains the assertion.

2 (Short Answer). Name the scientist who first discovered that electric current produces a magnetic effect.

Solution: Hans Christian Oersted.

3 (Applied). Two electromagnets are identical except one has 50 turns and the other has 100 turns of wire, carrying the same current. Which lifts more paper clips, and why?

Solution: The **100-turn** electromagnet — more turns produce a stronger magnetic field for the same current.

4 (Assertion-Reason). Assertion: Nichrome is preferred over copper for heating elements. Reason: Nichrome has lower resistance than copper.

Solution: Assertion is true, but the reason is **false** — nichrome actually has higher resistance than copper, which is why it heats up more.

5 (Short Answer). What is an electrolyte?

Solution: A solution (or paste) that conducts electricity by allowing ions to move, enabling the chemical reaction in a Voltaic cell.

6 (Applied). Why does an electromagnet lose its magnetism as soon as the current is switched off, unlike a bar magnet?

Solution: An electromagnet's magnetism comes entirely from the current-generated magnetic field; once current stops, that field disappears. A bar magnet's magnetism comes from permanently aligned internal magnetic domains, not from current.

7 (Synthesis). A student wants to make a stronger electromagnet without adding more cells. Suggest one way.

Solution: Increase the number of turns of wire in the coil (or insert/use a stronger iron core).

8 (Assertion-Reason). Assertion: A wire carrying current always gets warm, however small the current. Reason: All conductors have some resistance, and current through resistance always generates heat.

Solution: Both true, and the reason correctly explains the assertion (though the warming may be too small to notice with very small currents).

9 (Short Answer). Give one everyday application each of the magnetic effect and the heating effect of current.

Solution: Magnetic effect: electric bell/doorbell or electromagnetic crane. Heating effect: electric iron or room heater.

10 (Applied). Why does a lemon cell with only one lemon often fail to light an LED, but two or three lemons connected in series succeed?

Solution: A single lemon cell produces only a small voltage; connecting several in series adds their voltages

together, eventually reaching the minimum voltage the LED needs to glow.

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