



**CREST**  
*Olympiads*  
#CRESTInnovator

# CREST Science Olympiad (CSO) Worksheet *for*

**Class 7**



**Topic**

## Effects of Electric Current



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# Worksheet on Effects of Electric Current

1. Consider the following statements and choose the correct option:

**Statement I:** Fluorescent lights work by passing an electric current through a gas or vapour, which emits visible light.

**Statement II:** Incandescent bulbs produce light by passing an electric current through a tungsten filament, causing it to glow.

- a. Statement I is correct but statement II is incorrect.
- b. Statement I is incorrect but statement II is correct.
- c. Both statements are correct.
- d. Both statements are incorrect.

2. In which of the following devices is the magnetic effect of electric current utilised to convert electrical energy into mechanical energy?

- a. Solar panel
- b. Loudspeaker
- c. X-ray machine
- d. Laser printer

3. Which of the following factors affect the heating effect of an electric current?

- I. The resistance of the material
- II. The voltage applied
- III. The duration of the current flow

- a. Only I
- b. Only II
- c. Only I and III
- d. I, II, and III

4. Choose the correct option to complete the statement:

The \_\_\_\_\_ effect of electric current is responsible for the corrosion of metal objects over time.

- a. heating
- b. magnetic
- c. lighting
- d. chemical

**5. Which statement best describes the difference between an electromagnet and a permanent magnet?**

- a. Electromagnets are always stronger than permanent magnets.
- b. Electromagnets can be turned on and off while permanent magnets cannot.
- c. Electromagnets generate electricity, while permanent magnets do not.
- d. Electromagnets have multiple poles, while permanent magnets have a single pole.

## Answer Key

1. c - Statement I is correct because fluorescent lights do work by passing an electric current through a gas or vapour, which emits visible light.  
Statement II is also correct because incandescent bulbs produce light by passing an electric current through a tungsten filament, causing it to glow
2. c - Loudspeakers utilise the magnetic effect of electric current to convert electrical energy into mechanical energy. An electric current passing through a coil of wire in the loudspeaker interacts with a permanent magnet, creating a varying magnetic field. This varying magnetic field then causes a cone to vibrate, producing sound waves and converting electrical energy into mechanical energy for the purpose of generating sound.
3. d - All three factors mentioned affect the heating effect of an electric current:
  - I. The resistance of the material: Higher resistance leads to more heat generation.
  - II. The voltage applied: Higher voltage results in increased heat production.
  - III. The duration of the current flow: The longer the current flows through a material, the more heat is generated.
4. d - The Chemical effect of electric current is responsible for the corrosion of metal objects over time. When an electric current passes through a metal object, it can cause a chemical reaction that leads to the gradual breakdown or deterioration of the metal surface, resulting in corrosion.
5. b - The main difference between an electromagnet and a permanent magnet is that an electromagnet is created by passing an electric current through a coil of wire, which generates a magnetic field. This magnetic field can be controlled by turning the current on or off. In contrast, a permanent magnet produces a magnetic field naturally and does not require an electric current. It retains its magnetism without the need for an external power source and cannot be turned on or off.

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