परमाणु ऊर्जा शिक्षण संस्था
Atomic Energy Education Society
कार्यपत्रक / Worksheet (2025-26)

कक्षा/Class: VIII **शिषर्/Subject: SCIENCE** **माह/ Month: August**

CHAPTER 4: Electricity- Magnetic and heating effects

द्रिद्यार्थीकानाम/Name of the student: _____

अनुक्रमोंक /Roll No.____कक्षा/अनुभागClass /Sec.:_____द्रिनोंक /Date: _____

I. Choose the correct answer:

1. A device that detects electric current is:
   a) Ammeter
   b) Magnet
   c) Switch
   d) Galvanometer
2. Lithium-ion batteries are commonly used in:
   a) Wall clocks
   b) Remote controls
   c) Mobile phones and laptops
   d) Emergency lights
3. In a voltaic cell, which of these can act as an electrode pair?
   a) Zinc and Iron
   b) Copper and Plastic
   c) Zinc and Copper
   d) Iron and Rubber
4. The strength of magnetic field around a current-carrying conductor depends on:
   a) Type of wire
   b) Direction of current
   c) Amount of current
   d) Insulation
5. Which of the following uses an electromagnet?
   a) Table fan
   b) Loudspeaker
   c) Torch
   d) Radio
6. Which part acts as the negative terminal in a dry cell?
   a) Carbon rod
   b) Zinc casing
   c) Copper wire
   d) Mercury paste
7. What material is used to make a fuse wire?
   a) Iron
   b) Copper
   c) Nichrome
   d) Lead-tin alloy

8. The compass needle gets deflected when placed near:
   a) Magnet
   b) Electric bulb
   c) Electromagnet
   d) Both a and c
9. Which type of battery can be recharged?
   a) Dry cell
   b) Voltaic cell
   c) Lead-acid battery
   d) Daniel cell
10. In a voltaic cell, the flow of electric current is from:
   a) Positive to negative terminal
   b) Negative to positive terminal
   c) Electrolyte to electrode
   d) None of the above

II. Choose the correct answer from options given below for the statements. (4x1=4)

(a) Both A and R are true, but R is the correct explanation of A

(b) Both A and R are true, but R is not the correct explanation of A

(c) A is true, but R is false

(d) A is false, but R is true

11. **Assertion (A**): Electric current causes a magnetic field around a wire.
   Reason (R): Magnetism is a result of heating effect.
12. **Assertion (A**): In a voltaic cell, current flows from zinc to copper through the wire.
   Reason (R): Zinc loses electrons and acts as the anode.
13. **Assertion (A**): A dry cell cannot be recharged.
   Reason (R): The chemical reaction in a dry cell is irreversible.
14. **Assertion (A**): Carbon rod in a dry cell acts as the negative terminal.
   Reason (R): Carbon is a good conductor and collects electrons.

III. Read the following passage and answer the question carefully.

Riya was working on her school science project about electromagnets. She took a long iron nail and wrapped some copper wire around it. Then she connected the ends of the wire to a battery. As soon as she switched on the circuit, the nail started attracting small pins and paper clips. She was excited to see that her nail had turned into a magnet! However, when she turned off the switch, the nail stopped attracting objects. She realized that her setup worked as an **electromagnet** — a type of magnet whose magnetic power depends on electricity. Later, she discovered that electromagnets are used in many devices like **electric bells, cranes in junkyards, MRI machines**. She also noticed that increasing the number of wires turns or using a stronger battery made the magnet more powerful.

15. What happens to the strength of the electromagnet when more turns are added?
   a) Increases
   b) Decreases
   c) Remains same
   d) Becomes zero

16. The core of the electromagnet should be made of:
   a) Plastic
   b) Wood

c) Iron
d) Rubber

17. If the battery is removed, the iron nail will:
    a) Remain a magnet forever
    b) Become stronger
    c) Lose its magnetism
    d) Explode
18. Which of these affects the strength of an electromagnet?
    a) Colour of wire
    b) Material of core
    c) Length of wire only
    d) Shape of bulb

IV. Short answer type questions -I

19. Mention one key difference between a dry cell and a rechargeable battery.
20. What is the role of electrolyte in a cell?
21. Why does a compass needle deflect near a current-carrying wire?
22. Why are lithium-ion batteries preferred in portable electronics?
23. On what factors does the heating effect of electric current depend?
24. What are the precautions to be taken while using electrical appliances?

V. Short answer type questions- II

25. Describe how a dry cell produces electric current.
26. Compare the structure of a dry cell and a voltaic cell on the basis of electrodes, electrolyte and reusability.
27. Describe how electromagnet poles are formed and State two applications of electromagnets.
28. How can lemon juice be used to light a LED? Explain the process.