

CHAPTER#8 MAGNETISM

1. Define magnetism and magnetic materials.

Ans: **Magnetism:** A force that acts at a distance upon magnetic materials.

Magnetic materials: The materials which are attracted to magnets are called magnetic materials.
e.g. iron, nickel, cobalt etc.

2. Define magnetic field of a magnet.

Ans: It is a region around a magnet where a magnetic object experiences a force on it.

3. What are magnetic lines of force?

Ans: The imaginary lines that represent the direction and strength of a magnetic field.

4. Which type of magnetic field is formed by a current-carrying long coil?

Ans: It forms a strong, uniform magnetic field inside the coil.

5. What are temporary and permanent magnet?

OR Differentiate b/w temporary and permanent magnets.

Ans: **Temporary magnets:** The magnets which work in the presence of a magnetic field of permanent magnets.
e.g. electromagnets

Permanent magnets: The magnets who retain their magnetic properties forever. e.g. Speakers, electric meters etc.

6. Define electromagnet. Write its uses.

Ans: An iron rod becomes a magnet when electric current passes through a coil of wire around it. It is called electromagnet.

Uses: Electromagnets are used in:
electric bells, cranes, circuit breaker etc

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8. Name some uses of permanent magnets and electromagnets.

OR What are some applications of magnets?

OR Write some uses of magnets.

Ans: **Uses of permanent magnets:** Permanent magnets are used in:
speakers, electric meters, freezer doors etc.

Uses of electromagnets: Electromagnets are used in:
electric bells, cranes, circuit breaker etc.

9. Why steel is used to make a permanent magnet?

Ans: Because it is ferromagnetic and can retain magnetism well.

10. Differentiate b/w magnetization and demagnetization.

Ans: **Magnetization:** The process in which magnetic materials can be made a magnet.

Demagnetization: The process of removing magnetic properties from a magnet.

11. What is the application (or use) of magnetization in electromagnets?

Ans: It produces strong magnetic field in electromagnets.

Which is widely used in motors, generators and transformers etc.

12. Write some methods in which iron bar can be magnetized.

Ans: By keeping steel bar in a very strong magnetic field inside a solenoid through which large current is passed.

13. Write some methods in which magnets can be demagnetized.

Ans: By heating, hitting or drawing through a solenoid in which A.C current is passed.

14. If we break a bar magnet into two equal pieces, can we get N-pole and S-pole separately?

Ans: No, it is impossible. Even if a magnet is divided into many pieces, each piece will be complete magnet.

15. Can a magnet demagnetized by storing it near another magnet?

Ans: Yes, improper storage near another magnet can cause demagnetization.

16. Define domain theory of magnetization.

Ans: "A magnetic material is divided into small regions called domains, each having its own magnetic field."

Types of magnets

Temporary magnets

Permanent magnets

Electromagnets

Permanent magnet used in Refrigerator

Ferrite magnets

Strongest

permanent magnets are made by the material:

-Neodymium

Poles of a magnet

Magnet has two poles:

-South Pole

-North Pole



17. What are magnetic domains?

Ans: These are microscopic regions within a ferromagnetic material, where atomic magnetic moments are aligned, creating a localized magnetic field.

18. What is the effect of heat on domains of a magnetic material?

Ans: Due to heat magnetic materials lose their magnetization.

19. Why is iron more effective as a magnetic shield than other materials?

Ans: Iron is a good magnetic shield because it attracts magnetic fields.

20. What is the purpose of using iron as a magnetic field?

Ans: Because iron can protect objects from external magnetic fields.

21. Write the principle behind magnetic recording?

Ans: "Magnetic recording works by aligning magnetic domains on a storage medium."

22. Which type of magnetic field is formed by a current-carrying magnetic coil?

Ans: A current-carrying coil forms a strong, concentrated magnetic field inside.

23. Differentiate b/w paramagnetic and diamagnetic materials.

Ans: **Paramagnetic materials:** The materials in which fields due to orbital and spin motion of electrons in the atom support each other.
Diamagnetic materials: The materials in which fields due to orbital and spin motion of electrons in the atom add up to zero.

CHAPTER#9**NATURE OF PHYSICS****1. State in your own words, what is science? Write its two main groups.**

Ans: It is the collective knowledge about the natural phenomenon, processes and events occurring around us.
Main groups or Disciplines: i. Biological science ii. Physical science

2. Differentiate b/w biological science and physical science.

Ans: **Biological Science:**
 The branch which deals with living things is called biological science.
Physical Science:
 The branch which deals with non-living things is called physical science.

3. Define Physics. Write name of any four branches or sub fields

OR What is physics all about?

Ans: The branch of science which deals with matter, energy, space, time and their mutual relationship.

Branches: i. Optics ii. Astronomy
 iii. Mechanics iv. Nuclear physics

Main disciplines of nature

1. Biological science
2. Physical science

4. Differentiate b/w science, technology and engineering.

Ans: **Science:** It is the collective knowledge about the natural phenomenon, processes and events occurring around us.
Technology: It refers to the methods and techniques developed for using scientific knowledge.
Engineering: It is the process of applying various technologies and scientific principles to design different instruments, tools and build things.

5. How physics helps to understand the relationship b/w matter and energy?

Ans: Physics explains matter-energy relationship through laws of conservation and transformation.

6. Differentiate b/w quantum mechanics & relativistic mechanics.

Ans: **Quantum mechanics:** The branch of mechanics which explains the behavior of particles at atomic and subatomic level.
Relativistic mechanics: It explains how space and time are not absolute quantities but related to observer. It describes the relation between them.

7. Differentiate b/w Nuclear physics & particle physics.

Ans: **Nuclear Physics:** It is the study of the properties of nuclei of an atom.
Particle physics: It is the study of subatomic and elementary particles

8. Differentiate b/w Cosmology & astronomy.