Revision Notes

CHAPTER – 13

Fun with Magnets

- **Magnets:** Materials that attract iron, nickel and cobalt.
- Natural magnet is called Iodestone or magnetite.
- Magnetite is a natural magnet.
- Magnet attracts materials like iron, nickel, cobalt. These are called magnetic materials. Materials that are not attracted towards magnet are called non-magnetic ex. aer,glass,cloth,lastic,rubber etc.
- **Magnetic force :** The force by means of which a magnet attracts objects towards itself .
- **Poles of a magnet :-** The ends of the magnet where maximum iron filings get collected are called the poles.
- **North pole :-** The end pointing towars north is called the north seeking end or the North pole.
- **South pole :-**The end pointing towards south is calle the south seeking or the South pole.
- A freely suspended magnet always aligns in N-S direction.
- Like poles repel , and unlike poles attract each other.

DIFFERNT TYPES AND SHAPE OF MAGNETS

1. Bar magnet
2. Ball-ended magnet (Dumb-bell)
3. Horseshoe magnet
4. Cylindrical magnet
5. Magnetic needle
6. Artificial magnet
7. Loadstone (natural magnet)
8. ring or disc shape magnet

Temporary magnets :- Temporary magnets last or a short time.(Iron bar magnets)

Permanent magnets :- Permanent magnets last for a long time. They are made from a steel or an alloy known as AlNiCo, a combination of aluminium,nickel an cobalt.

Classification of substances based on attraction to magnets:

- **Magnetic Substances**: Materials which get attracted towards magnets. Example: copper, iron, nickel, etc.
- **Non-magnetic Substances**: Materials which do not get attracted towards magnets. Example: wood, paper, plastic and most metals.

Methods to make your own Magnet:

1. **Single Touch Method**: When a magnet is used to rub an iron object along it's length, the starting from one end to another end like combing one's hair, the iron object gets magnetised.
2. **Double Touch Method**: When an iron bar (object) is rubbed by two powerfull bar magnets of equal strength with their opposite poles at the centre, in opposite direction , the bar or the object becomes a magnet.
3. **Using Electric Current**: The bar to be magnetized is placed inside the coils of a conductor and current is passed through these coils of wire.

Properties of Magnet:

1. A magnet has two poles – north pole and south pole.
2. Similar poles repel each other.
3. Opposite poles attract each other.
4. Magnetic poles always exist in pairs.
5. There is no magnet like monopolar magnet. magnet is always bipolar.

Applications of Magnet:

Compass needle: The compasss is a small glass case containing a magnetised neele pivoted on an aluminium nail. The needle is free to rotate. It points north-south because the earth is

also a giant magnet. The compass lines up with the earth’s magnetic field.

- Used in factories for lifting heavy masses of iron like scrap iron.
- Call bells an door chimes use elctromagnet.
- Loudspeaker have parmanent magnet
- Used by surgeons in hospitals to remove steel splinters from the wounds.
- Used in the construction of telephones, electric bells, etc.
- Used to separate iron and steel from non-magnetic materials.

DEMAGNETISATION , loss of magnetic proprty

A magnet may lose its magnetic property when it is ,

- hammered
- heated, or
- dropped with a force and it strikes against a hard substance.
- When two bar magnets are not stored with their like oles pointing in the same direction , each pole will destroy the other by induction.

TAKING CARE OF MAGNETS

When not in use the magnets should be stored in boxes made from non-magnetic materials like cardboard or wood. magnets should be protected with 'keepers '.