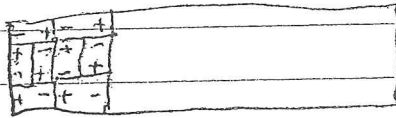


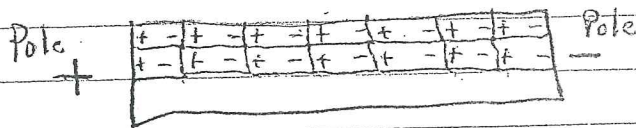
Magnetism

1) Magnet - A metal substance usually Iron in which the atoms' domains line up in the same direction creating a magnetic field.

2) Examples: Domains out of line



Domains in line



3) Magnet poles -
A) like poles repel
B) unlike poles attract

4) Induced magnetism - A process in which a substance is magnetized by a temporary lining up of the domains in the metal bar. This makes it a temporary magnet.

5) Permanent Magnets - A substance that holds a magnetic field for a long period of time.

6) 2 Types of Permanent Magnets.

- 1) Soft Magnets - Iron is easily magnetized but loses it easily.
- 2) Hard Magnets - Cobalt and Nickel are difficult to magnetize but holds it better.

- 7) Magnetic Field - region where a magnetic force can be detected.
- 8) Compass - Device that contains a magnet that points to the earth's magnetic poles.
- 9) Electromagnetism - Created when a coil of wire is wrapped around a metal bar and an electric current is passed through the wire.
- 10) Strength and direction of an electromagnet:
- 1) Strength depends on the number of wraps of wire.
 - 2) Direction of poles uses the left hand thumb rule which rolls the fingers in the direction the current flows and the thumb points north.
- 11) Electric motor - a machine that converts electrical energy into mechanical energy.
- 12) Galvanometer - device that is used to measure electrical current.
- 13) Electromagnetic induction - process of creating a current in a circuit by changing a magnetic field.
- 14) Faraday's Law - An electric current can be produced in a circuit by changing the magnetic field crossing the circuit.

15) Magnetic force acts on wires carrying a current.

{ When the wire is moving perpendicularly to a magnetic field, the force on the charge is at a max. }

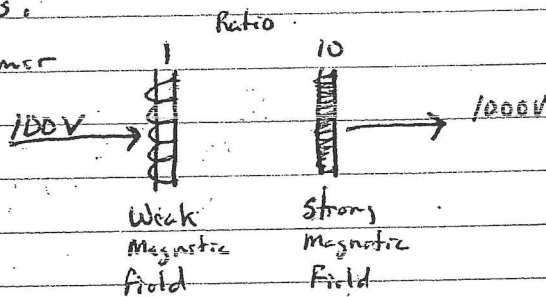
16) Generator - device that converts mechanical energy into electrical energy using loops of wire turning in a magnetic field.

17) Alternating Current - Current that changes direction at regular intervals as the coil of wire turns in the magnetic field.

18) Transformers - device that changes the voltage of alternating current by changing the magnetic field that it goes through.

19) Types of Transformers:

1) Step up transformer



2) Step down transformer

