Electromagnetism

1) **Law of Magnetism (Coulomb's law)/ Law of Magnetic Force:**
   i) When two isolated poles are placed near each other they experience a force.
   ii) The force between two magnetic poles is directly proportional to the product of their pole strength & inversely proportional to the square of the distance between their centres.

$$F \alpha$$

$$\text{or } F = k \qquad \text{where k}$$

Relative permeability depends on material media

2) **Magnetic Field Lines: -**
   i) Magnetic field lines are imaginary lines drawn in the region of 'space-time' along which a 'free north pole' would move if allowed.
   ii) The region around a magnet where its magnetic influences can be experienced is called the magnetic field. The direction and strength of magnetic field are represented by magnetic lines of force.

Properties of magnetic field lines: -

1) Magnetic field lines form a closed loop. It moves from the North pole to south pole outside the magnet & moves from south pole to north pole from inside.