

PHYSICS/WS-4

CLASS-12

UNIT-4& 5

MOVING CHARGES AND MAGNETISM &
MAGNETISM AND MATTER

1. State Biot – Savart law and express this law in the vector form.
2. Write an expression for Lorentz magnetic force on a particle of charge q moving with velocity v in a magnetic field B . Show that no work is done by this force on the charged particle.
3. Define current sensitivity of a galvanometer. Write its S.I unit.
4. Draw and explain the working of a cyclotron.
5. Derive the expression for the torque on a rectangular current carrying loop suspended in a uniform magnetic field.
6. Derive an expression for the magnetic field along the axis of an air-cored solenoid using Ampere's circuital law.
7. What is the relationship between the current and magnetic moment of a current carrying circular loop?
8. A galvanometer having a coil resistance of 100Ω gives full scale deflection with a current 1m A passes through it. Calculate the value of resistance required to convert it into an ammeter of range 0.1 A .
9. Draw the labelled diagram of moving coil galvanometer.
10. Write two properties of a material suitable for making (a) a permanent magnet, and (b) an electromagnet.
11. The motion of copper plate is damped when it is allowed to oscillate between the two poles of a magnet
12. Draw the field lines of (1) bar magnet (2) an electric dipole (c) a current carrying solenoid
13. Differentiate the magnetic properties of dia, para and ferro magnetic substances.
14. The vertical component of the earth's magnetic field at a given place is $\sqrt{3}$ times its horizontal component. If total intensity of earth's magnetic field at the place is 0.4G find the value of angle dip and horizontal component of earth.

15. How is an electromagnet different from a permanent magnet?
16. Why do magnetic lines of force form continuous closed loops?
17. Where on the surface of earth is angle of dip 90° .
18. How does a circular loop carrying current behaves as a magnet?
19. Write two properties of a material which make it suitable for making electromagnet?
20. Define the angle of declination and inclination.