

# O P JINDAL SCHOOL, SAVITRINAGAR

## CLASS TEST & PRACTICE

CLASS XII PHYSICS

TOPIC : MOVING CHARGES AND MAGNETISM

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- 1 What is the advantage of using radial magnetic field in a moving coil galvanometer? 1
  - 2 Why is it necessary for voltmeter to have a high resistance? 1
  - 3 What is figure of merit of a galvanometer? 1
  - 4 Define gyromagnetic ratio. 1
  - 5 Can we decrease the range of an ammeter? 1
  - 6 Why can a galvanometer not be used as such to measure current in a given circuit? Write two reasons. 1
  - 7 An electron does not suffer any deflection while passing through a region of uniform magnetic field. What is the direction of the magnetic field? 1
  - 8 What is the direction of the force acting on a charged particle  $q$ , moving with a velocity  $\vec{v}$  in a uniform magnetic field  $\vec{B}$ ? 1
  - 9 A proton is moving along +ve x-axis in the presence of uniform magnetic field along +ve y-axis. What is the direction of the force acting on it? 1
  - 10 When a charged particle moving with velocity  $\vec{v}$  is subjected to magnetic field  $\vec{B}$ , the force acting on it is non-zero. Would the particle gain any energy? 1
  - 11 Write two properties of a material used as a suspension wire in a moving coil galvanometer. 1
  - 12 Two protons moving with velocities  $v$  and  $2v$  enter with the same magnetic field  $\vec{B}$  perpendicularly. Compare the radii of their paths and the time periods. 1
  - 13 An electron and a proton, moving parallel to each other in the same direction with equal momenta, enter into a uniform magnetic field which is at right angles to their velocities. Trace their trajectories in the magnetic field. 1
  - 14 Under what conditions will the force exerted by the magnetic field on a charged particle be (i) maximum and (ii) minimum? 1
  - 15 Which one of the following will experience maximum force, when projected with the same velocity 'v' perpendicular to the magnetic field 'B': (i)  $\alpha$ -particle, and (ii)  $\beta$ -particle? 1