



Dnyansagar Coaching Classes, A'nagar

Unit Test

Std. - XII

Sub- Physics II

Magnetic Effect and Electric Current

Time - 1 hrs

Max Marks - 20

- Q.1** Select & write the most appropriate answer from the given alternatives for each sub question. 4
- In moving coil galvanometer, the turning effect of the coil is proportional to
 - I^3
 - I
 - I^2
 - I^4
 - If the galvanometer current is 10mA, resistance of the galvanometer is $40\ \Omega$ and shunt of $2\ \Omega$ is connected to the galvanometer, the minimum current which can be measured by the ammeter is
 - 0.21 A
 - 2.1 A
 - 210 A
 - 21 A
 - Magnetic flux per unit area can be measured in
 - Weber
 - Henry
 - Tesla
 - Mho
 - On which of the following effects of current, is the moving coil galvanometer based
 - Heating effect
 - Chemical effect
 - Magnetic effect
 - Thermoelectric effect
- Q.2** **Attempt Both.** 2
- A. Attempt any one.**
- State and Explain Amper's law.
 - Derive the expression for sensitivity of MCG.
- B. Attempt any two.** 6
- How can you convert MCG into a ammeter.
 - Describe the construction of Tangent galvanometer and give its presettings.
 - Explain -
 - Why we use concave pole pieces in MCG.
 - Why we use iron core in MCG
 - A galvanometer of resistance $100\ \Omega$ gives a full scale deflection for a current of 2 mA. How will you use it to measure.
 - Current upto 2A
 - Voltage upto 5V?
- Q.3** **A) Solve any two.** 4
- A moving coil galvanometer requires a current of 1mA for a full-scale deflection of 50 divisions. If the galvanometer resistance is $100\ \Omega$, Calculate its current and voltage sensitivity.
 - A current of 3mA passing through a tangent galvanometer produces a deflection of 30° . Find the current required to produce a deflection of 60° .
 - A proton of mass $1.67 \times 10^{-27}\ \text{kg}$ and charge $1.6 \times 10^{-19}\ \text{C}$ moves with the speed of $10^7\ \text{m/s}$ in a magnetic field of induction $0.5\ \text{wb/m}^2$ at right angles to the field. Calculate radius of the circular path.
- B) Attempt any one.** 4
- Describe construction and working of cyclotron.
 - Obtain the principle of MCG.