

Name:		Roll No.		Subject	Physics
Test Type	MSQs, Short & Long Questions	Class	12 th	Date	
Chapter	14 Start to before CRO	Unit	14	Time	

Q. No. 1 Tick the best option

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- The direction of force on a current carrying conductor placed in magnetic field is that of:
(a) Magnetic field (b) Length of conductor (c) $\vec{L} \times \vec{B}$ (d) $\vec{L} \cdot \vec{B}$
- If length of the solenoid is doubled without changing the number of turns then magnetic field:
(a) Remains same (b) Become half (c) Becomes double (d) Four times
- When an electron enters at right angle to the magnetic field, the magnitude of velocity is:
(a) Increase (b) Decreased (c) Remains constant (d) None of these
- The SI unit of permeability μ_0 is:
(a) Weber-m/A (b) Weber/A.m (c) Weber-A/m (d) N/Am
- When a charge particle is projected at acute angle to the magnetic field, then the path of the particle will be:
(a) Straight line (b) Circular (c) Helical (d) Parabolic
- The e/m of an electron can be calculated by using the formula:
(a) $\frac{vr}{Br}$ (b) $\frac{2V}{B^2 r^2}$ (c) $\frac{2Ve}{m}$ (d) $\frac{B^2 r^2}{2V}$
- Two free parallel wires carrying current in opposite direction:
(a) Repel each other (b) Attract each other
(c) Cancel each other's effect (d) Do not effect
- The unit of E/B:
(a) m/s² (b) m²/s (c) 1/ms (d) m/s
- Work done by a magnetic force of 5N when a charge q is displaced 2m is:
(a) 5 J (b) Zero (c) Non-zero (d) 10 J
- The Value of e/m of neutron is:
(a) 1.75×10^{11} c/kg (b) 1.75×10^{-11} c/kg (c) 1.6×10^{-19} c/kg (d) Zero
- The magnetic field inside a long solenoid, when current passed through it will be:
(a) Weak (b) Strong (c) Zero (d) None
- The magnetic field produced by a current carrying conductor at a distance "r" is:
(a) $\mu_0 I / 2\pi r$ (b) $2\pi r / I\mu_0$ (c) $2\pi \mu_0 / I r$ (d) $I / 2\pi \mu_0 r$
- Weber has the dimensions of:
(a) Volt/sec (b) $\frac{\text{Volt}^2}{\text{sec}}$ (c) Volt/sec² (d) Volt.sec
- The magnetic force experienced by a charge particle is maximum when charge particle is projected at:
(a) $\theta = 0^\circ$ (b) $\theta = 45^\circ$ (c) $\theta = 90^\circ$ (d) $\theta = 180^\circ$
- Which of the following particle moving in the magnetic field cannot be deflected:
(a) Alpha particles (b) Beta particles (c) Electron (d) Neutron
- For a current carrying solenoid the terms "n" has units as:
(a) m (b) 1/m (c) 1/m² (d) No unit
- Which of the following is the equal to one Tesla?
(a) NA/m (b) Weber-m² (c) KgA⁻¹s⁻² (d) KgAs⁻²
- If 0.5T field over an area of 2 m² which lies at an angle of 60° with field. Then the resultant flux will be:
(a) 0.50 T (b) 0.50 Web (c) 0.25 web (d) 0.25T
- One gauss is equal to:
(a) 10⁴ tesla (b) 10⁻⁴ gauss (c) 10⁶ tesla (d) 10⁻⁴ tesla
- Magnetic field $\vec{B} = (4\hat{i} + 18\hat{k})$ Wbm⁻² passes through an area of $5\hat{k}$ m². The flux passes through the area is:
(a) 90 T (b) 90×10^{-4} Wb (c) 90 Wb (d) Zero
- The ratio of magnetic flux to surface area belongs to:
(a) Wb/A m² (b) NA/m (c) Tesla (d) All
- The magnetic force on an electron moving with speed 10⁷ m/s perpendicular to the magnetic field of strength 1 Wb/m² is:
(a) 1.6×10^{-26} N (b) 1.6×10^{-12} N (c) 1.6×10^{-13} N (d) Zero

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Q. No. 2 Write the short answer of these following questions

3 x 2 = 06

- 1) What happened to the two long parallel wires carrying currents in opposite direction and same direction? Give reason?
- 2) Define the terms: (i) Magnetic induction (ii) Tesla.
- 3) What is Lorentz force? Write its mathematical expression.

Q. No. 3 Long question

- 1) State Ampere's law. Find out the magnetic field due to current carrying solenoid.
- 2) Determine (e/m) ratio of an electron. Derive its relation.

