

**SUB : PHYSICS,, UNIT – III,, CLASS: XII-2024**

**Total mark: 20 m Time : 45 minutes**

**Section – A**

**Choose the correct Answer ( 3 x 1 = 3 )**

1. Three wires of equal lengths are bent in the form of loops. One of the loops is circle, another is a semi-circle and the third one is a square. They are placed in a uniform magnetic field and same electric current is passed through them. Which of the following loop configuration will experience greater torque ? (a) Circle (b) Semi-circle (c) Square (d) All of them
2. The vertical component of Earth's magnetic field at a place is equal to the horizontal component. What is the value of angle of dip at this place? (a)  $30^\circ$  (b)  $45^\circ$  (c)  $60^\circ$  (d)  $90^\circ$
3. magnetic materials are classified into ..... categories (a) 1 (b) 2 (c) 3 (d) none of the above

**Answer Any FOUR Questions (4 x 3 = 12 )**

4. Give an account of magnetic Lorentz force.
5. Compare the properties of soft and hard ferromagnetic materials
6. Compute the torque experienced by a magnetic needle in a uniform magnetic field.
7. Discuss the conversion of galvanometer into an ammeter
8. Give the properties of ferromagnetic materials.
9. state and prove Biot-Savart's law.

**Answer All the Questions ( 1 X 5 = 5 )**

10. a) Discuss the working of cyclotron in detail.

(Or)

b). Derive the expression for the force between two parallel, current-carrying conductors

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