Chapter - 13

Magnetic Effects Of Electric Current

(One Mark Question)

Q.1 Why does the bulk of iron fillings stick to the ends of a bar magnet and not at its centre?

Ans. Because at the ends magnetic strength is maximum and at centres magnetic strength is least.

Q.2 If the frequency of A.C. is 50 Hz. Then how many times it is changing its direction in 1 second?

Ans- 100 Times.

Q.3 What is the pattern of the magnetic field lines around a straight conductor carrying current?

Ans. Concentric circles

Q.4 If the current is flowing in the direction of advancemet of screw, then what is the direction of magnetic field lines?

Ans.In the direction of rotation of screw.

Q.5 How can you say that the magnetic field is uniform inside the solenoid.

Ans. Because field lines are parallel inside the solenoid.

Q.6 Which property of a proton will change while it moves freely in a magnetic field?

Ans. Momentum or Velocity.

Q.7 According to Flemings right hand rule, which part of right hand indicate the movement of conductor?

Ans. Thumb

Q.8 If the no. of turns of a circular current carrying coil are doubled, then how will the magnetic field produced by it changes?

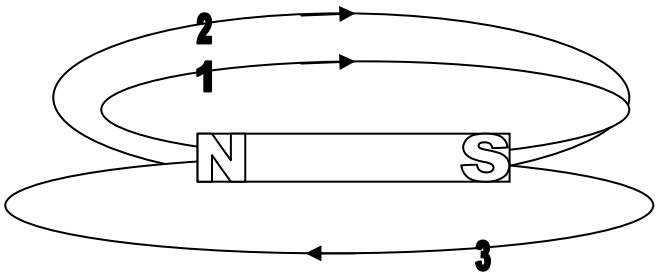
Ans. Doubled

Q.9 In which position the force on conductor is maximum when it is placed in uniform magnetic field?

Ans. When conductor is Perpendicular to field

(Two Marks Questions)

Q.1 A student draws three magnetic field lines 1,2 and 3 of a bar magnet with the help of a compass needle as shown in figure



(a)Is this configuration possible?
(b)If not what is wrong in figure and why?

Ans. (a)No

(b) (i) Two field lines cannot intersect (ii) direction of field lines '3' is wrong.

Q-2 Suppose you are sitting in a room facing one of the wall. An electron beam moving horizontally from your back goes towards the wall in front you and is deflected to your left, what is the direction of magnetic field in the room?

Ans. Vertically upward.

Q-3 A current through a horizontal power line flows in north to south direction.What is the direction of magnetic field (i)at a point directly below it and (ii)at a point directly above it?

Ans. (i) West to East (ii) East to West

Q-4 Electric appliances like electric –press, toaster, fans etc are connected to electric mains through three-pin plug. Why ?

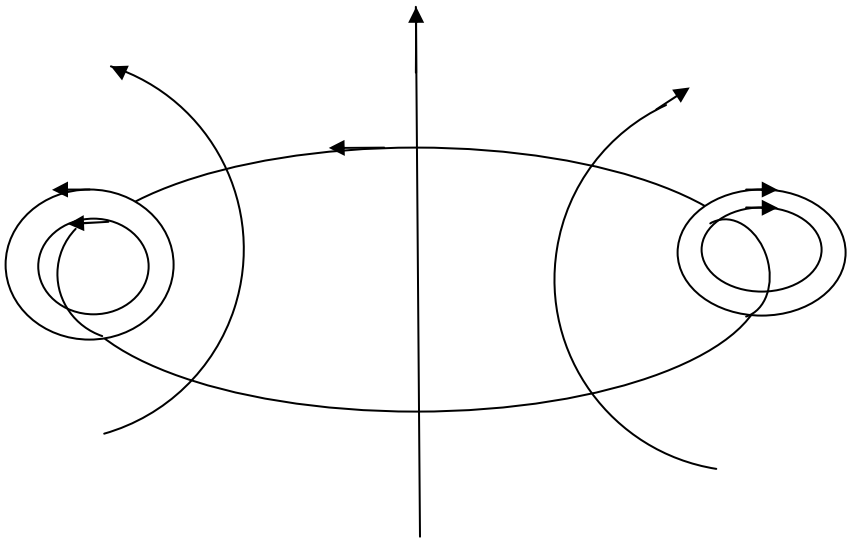
Ans. Electric appliances are connected to three pin plug because heavy appliances require earth wire,so that in case of leakage of any current it goes to earth and user will not get shock.

(Three Marks Questions)

Q-1 Consider a circular wire lying in the plane of the table and the direction of current in it is anticlock wise.(i) Draw the magnetic field lines produced around it.

(ii) Why does magnetic field at the center of current carrying circular loop appear straight? Explain with diagram.

Ans. (i)



(ii) Because of large curvature of magnetic field lines at centre.

Q-2If we place a compass needle near straight conductor carrying current

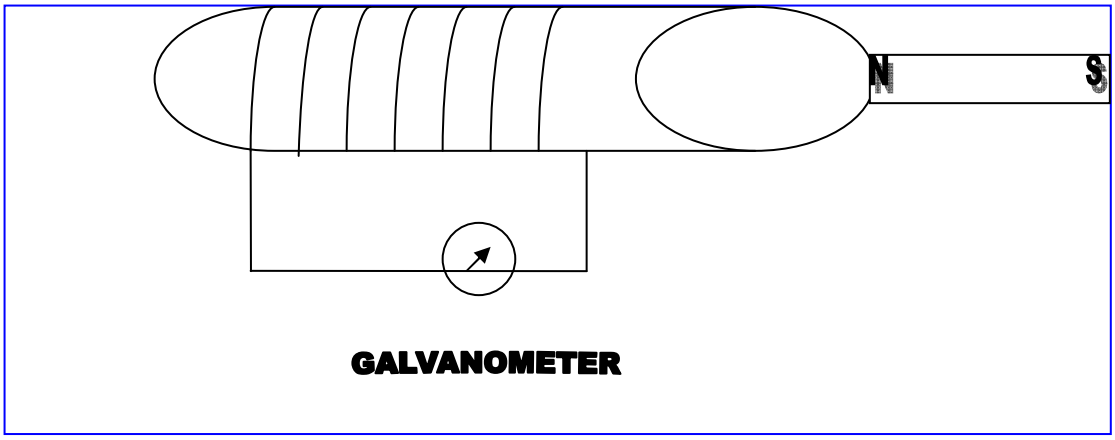
(a)What happens to the deflection of the compass needle if the direction of current is reversed .

(b)What change will you notice in the compass needle if it is moved away from conductor but the current through the conductor remains the same?

Ans. (a) Direction of deflection will reverse

(b) Deflection will decrease

Q-3 A magnet is moving towards a coil as shown in figure

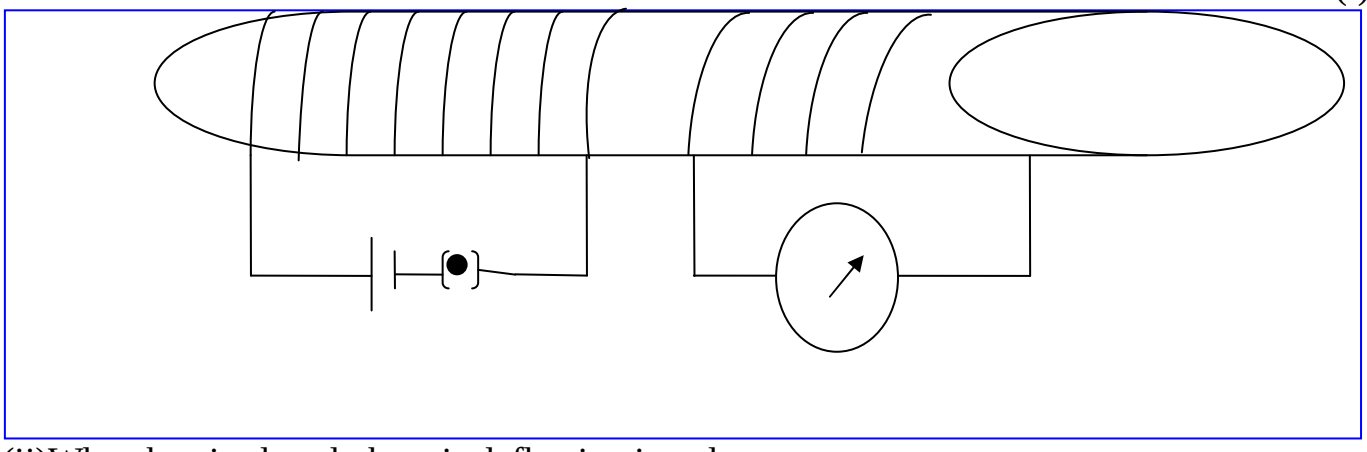


(1)Which phenomenon is shown in figure.
(2) Which physical quantity is set up in the coil when there is a relative motion between magnet and coil?
(3) What may be the cause of production of that physical quantity?

Ans. (1) Electromagnetic induction
(2)Induced current
(3)Change in magnetic lines of forces through coil

Q-4 Suppose your science teacher asks you to demonstrate the phenomena Of EMI with following materials:
(a)Two different coils 1and 2 of copper wire having large no. of turns 50 and 100 respectively.
(b)A non conducting cylinder.
(c)A battery
(d) A plug key
(e) A galvanometer
(i) Draw a labeled diagram of your demonstration setup.
(ii)How will you prove the phenomena of EMI.

Ans. (i)



(ii)When key is closed, there is deflection in galvanometer