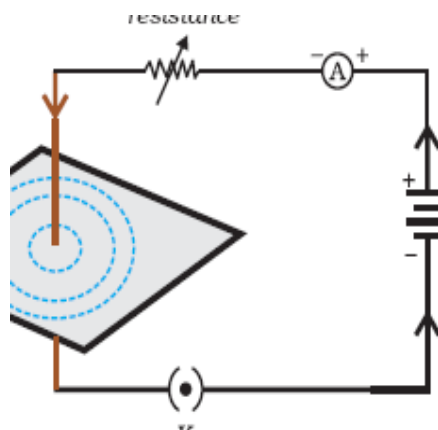




- Why does a compass needle get deflected when brought near a bar magnet?
- Q.2. Draw magnetic field lines around a bar magnet.
- Q.3. List the properties of magnetic lines of force
- Q.4. Why don't two magnetic lines of force intersect each other?
- Q.5. Consider a circular loop of wire lying in the plane of the table. Let the current pass through the loop clockwise. Apply the right-hand rule to find out the direction of the magnetic field inside and outside the loop.
- Q.6. The magnetic field in a given region is uniform. Draw a diagram to represent it.
- Q.7. Explain different ways to induce current in a coil.
- Q.8. An electric oven of 2 kW power rating is operated in a domestic electric circuit (220 V) that has a current rating of 5 A. What result do you expect? Explain.
- Q.9. What precaution should be taken to avoid the overloading of domestic electric circuits? Write the balanced chemical equation to represent the change taking place. 2
- Q.10. State Right Hand Thumb rule to find the direction of the magnetic field around a current carrying straight conductor. How will this magnetic field be affected on-
- (a) Increasing the current through the conductor?
- Q.11. A current carrying straight conductor is placed in east-west direction. What will be the direction of the force experienced by this conductor due to earth's magnetic field? How will this force get affected on :
- a) reversing the direction of flow of current?
- b) doubling the magnitude of current?
- Q.12. What kind of energy transformation takes place in an electric motor? Name any two devices which use electric motor as an essential component in their working. (b)  
Does the direction of magnetic field lines get reversed if the direction of current through the straight copper wire is reversed?

What do these concentric circles represent?

What happens to the deflection of the needle if the compass from the copper wire but the current through the wire remains the same?



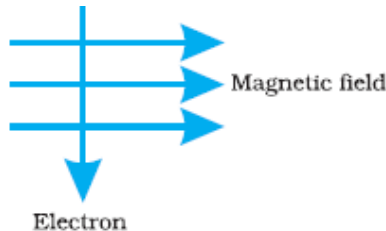
A current through a horizontal power line flows in east to west direction. What is the direction of magnetic field at a point directly below it and at a point directly above it?

Suppose these straight wire is bent in the form of a circular loop and a current is passed through it. How would the magnetic field lines look like? State the rule which is used to find the direction of field line. In a circular coil having  $n$  turns, the field produced is  $n$  times as large as that produced by a single turn? Why

Consider a circular loop of wire lying in the plane of the table. Let the current pass through the loop clockwise. Apply the right-hand rule to find out the direction of the magnetic field inside and outside the loop.

Compare the pattern of the field produced in the solenoid with that of magnetic field around a bar magnet?

An electron enters a magnetic field at right angles to it, as shown in Fig.. The direction of force acting on the electron will be changing the direction of flow of current in the conductor?



The magnet exerts its influence in the region surrounding it. Therefore the iron filings experience a force. The force thus exerted makes iron filings to arrange in a pattern.

### **MAGNETIC EFFECTS OF ELECTRIC CURRENT (1)**

#### **VERY-SHORT ANSWER QUESTIONS**

Q1. How can you find the direction of a magnetic field at a point through which the magnetic line of force is given?

Q2. Sketch the shape of magnetic field lines near a straight wire carrying a current?

Q3. How is strength of a magnetic field at a point near a current carrying wire related to current?

Q4. A circular wire is carrying a current. Sketch the shape of the magnetic field lines in a plane that is perpendicular to the plane of the wire and passes through its centre?

Q5. A vertical wire is carrying a current in the upward direction. It is placed in a magnetic field pointing towards the east. Find the direction of the force on the wire.

Q6. A beam of electrons can be thought of as an electric current whose direction is opposite the direction of the moving electrons. Suppose you find that an electron beam coming towards you horizontally through a magnetic field gets deflected towards your right. What is the direction of the magnetic field that bends the beam?

Q7. A wire loop is moved into a magnetic field. You have to find the direction of the current in a portion of the loop that is moving perpendicular to the field. Will you use Fleming's left hand rule or right hand rule?

Q8. A motor converts energy from one form to other name the two forms in sequence?

Q9. A generator converts energy from one form to other name the two forms in sequence?

Q10. Which wire (live, neutral or earth) goes through a switch?

Q11. Are different electric appliances connected in series or parallel in house?

Q12. What is the colour convention for live, neutral and earth wires?

Q13. Why alternating current is used in preference to direct current?

### **MAGNETIC EFFECTS OF ELECTRIC CURRENT (20**

#### **SHORT ANSWER QUESTIONS**

Q1. Why cannot two magnetic field lines cut each other?

Q2. How is an electromagnet different from a permanent magnet?

Q3. Can a magnetic field be produced without using a magnet? If yes, how?

Q4. You are given a strong bar magnet and a compass. Describe a method by which the magnetic field lines due to the bar magnet can be drawn.

Q5. What is the function of an earth wire in electric lines? Why is the metallic body of an electric appliance connected to the earth wire?

Q6. An electric heater is rated 2kw, 220v. If a fuse is to be connected to it, should it be rated 5A or 15A?

Q7. What will be the frequency of alternating current if its direction changes after every 0.01s?

Q8. What is short circuiting?

Q9. As soon as current is switched on in a high voltage wire; the bird sitting on it flies away. Why?

Q10. A metallic rod is moved in a magnetic field in such a way that it cuts magnetic field lines. When will the induced emf be greater?

a) When the metallic rod moves with low speed?

b) When the rod moves with high speed. Why?

Q11. What is the principle of an electric motor?

Q12. Explain the construction and working of an electric motor using a well labeled diagram.

Q13. The main power supply of a house is through 5A fuse. How many 100W bulbs can be used in this house at the correct voltage?

Q14. Electric supply of a house is through a 15A fuse. When a 2000W heater is used in this house how many 100W bulbs can be used simultaneously? The supply is at 220V, the heater and the bulb are rated 220V.

### **MAGNETIC EFFECTS OF ELECTRIC CURRENT (3)**

#### **LONG ANSWER QUESTIONS**

Q1. What is electric generator? State the principle of electric generator.

Q2. What is overloading? How can you avoid overloading?

Q3.Explain the meaning of the word “electromagnetic” and “induction” in the terms of electromagnetic induction.

Q4.On what factors does the value of induced current produced in a circuit depend? Name and state the rule used for determination of direction of induced current. State one application of this phenomenon in everyday life.

Q5.A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is:

- a) Pushed into the coil.
- b) Withdrawn from inside the coil
- c) Held stationary inside the coil? Explain.

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