Questions for Practice

Q.1 The magnetic field inside a long straight solenoid carrying current:

(a) is zero (b) decreases as we move towards its end

(c) is same at all points. (d) Increases as we move towards its end

Q.2 Which of the following properties of proton can change while it moves freely in a magnetic field?

(a) mass (b) speed (c) velocity (d) momentum.

Q.3 How do we think the displacement of rod AB will be affected if

(i) current in a rod AB is increased (ii) a stronger horse-shoe magnet is used

(iii) length of rod AB is increased ? (Figure 13.12 Page number 230).

Q.4 A positively-charged particle (alpha particle) projected towards west is deflected towards north by magnetic field. The direction of magnetic field is :

(a) towards south (b) towards east (c) downward (d) upward

Q.5 What is the role of the split-ring in an electric motor?

Q.6 What will be the frequency of an A.C if its direction changes after every .01 s?

Q.7 An A.C has a frequency of 50 Hz. How many times does it change its direction in one second?

Q.8 A student performs an experiment to study the magnetic effect of current around a current carrying straight conductor. He reports that

(i) The direction of deflection of the north pole of a compass needle kept at a given point near the conductor remains unaffected even when the terminals of the battery sending current in the wire are inter changed.

(ii) for a given battery, the degree of deflection of a N-pole decreases when the compass is kept at a point farther away from the conductor. Which of the above observations of the student is incorrect and why?

Q.9 Draw the pattern of magnetic field lines of a current carrying solenoid. What does the pattern of field lines inside the solenoid indicate? Write one application of magnetic field of current carrying solenoid.

Q.10 Sketch magnetic field lines around a current carrying straight conductor.

Q.11 Why does a current carrying conductor kept in a magnetic field experience force? On what factors does the direction of this force depend? Name and state the rule used for determination of direction of this force.

Q.12 Two circular coils A and B are placed close to each other. If the current in the coil A is changed, will some current be induced in the coil B? Give reason.

Q13 Explain what is short-circuiting and overloading in an electric supply?

Q.14 What is the function of an earth wire? Why is it necessary to earth the metallic appliances?

Q.15 (a) What is an electromagnet? What does it consist of?

(b) Name one material in each case which is used to make a (i) permanent magnet (ii) Temporary magnet.

Q.16 Draw a sketch of the patten of field lines due to a (i) current flowing in a circular coil (ii) current carrying solenoid.

Q.17 A circuit has a fuse of 5A. What is the maximum number of 100W, 220V bulbs that can be safely used in the circuit.