



Question 9.

- (a) Current in rod AB is increased?
- (b) A stronger horseshoe magnet is used?
- (c) Length of the rod AB is increased?

Solution:

- (a) If the current in rod AB is increased, the displacement of rod AB will not be affected.
- (b) If a stronger horseshoe magnet is used, force is exerted and hence the displacement increases.
- (c) If the length of the rod AB is increased there is no change in the displacement of the rod AB.

Question 10. A positively-charged particle projected towards west is deflected towards north by a magnetic field. The direction of the magnetic field is

- (a) Towards south
- (b) Towards east
- (c) Downward
- (d) Upward

Solution:

- b) Towards east.

Question 11. State Fleming's left-hand rule.

Solution:

Fleming's left-hand rule states that, stretch the thumb, fore finger and middle finger of the left hand such that they are mutually perpendicular. If the first finger points in the direction of magnetic field and the second finger in the direction of current, then the thumb will point in the direction of motion or the force acting on the conductor.

Question 12. What is the principle of an electric motor?

Solution:

Principle of an electric motor:

The working of the electric motor is based on the mechanical effect of an electric current. A conductor carrying a current placed in a magnetic field experiences a mechanical force.

In the motor, when a current is passed through a rectangular coil of wire placed in a magnetic field, the coil rotates continuously.

Question 13. What is the role of the split ring in an electric motor?

Solution:

In electric motor, the split ring acts as a commutator. A device that reverses the direction of flow of current through a circuit is called a commutator. The reversal of current also reverses the direction of force acting on the two arms AB and CD.

Question 14. Explain different ways to induce current in a coil

Solution:

Current can be induced in a coil either by moving it in a magnetic field or by changing the magnetic field around it. The induced current is found to be the highest when the direction of motion of the coil is at right angles to the magnetic field. The process, by which a changing magnetic field in a conductor induces a current in another conductor, is called electromagnetic induction.

Question 15. State the principle of an electric generator.

Solution:

A generator is also known as a dynamo. It is a device used to convert mechanical energy into electrical energy. The mechanical energy is used to rotate a conductor in a magnetic field to produce electricity. It is an application of electromagnetic induction.

An A.C generator generates an alternating current.

A D.C generator is used to deliver a current, which flows in the same direction.

Question 16. Name some source of direct current

Solution:

The source of direct current is a split-ring type commutator, one brush is at all times in contact with the arm moving up in the field, while the other is in contact with the arm moving down. Thus a unidirectional current is produced.

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