CBSE class 10 - Magnetic Effects of Electric Current question and answers Set A

1. What do you mean by a magnet?

Answer - A substance that attracts Magnetic materials and points in a North-South direction when suspended freely is known as a magnet.

Greeks discovered the first natural magnets called magnetite in magnesia.

2. What is Artificial Magnet?

The magnetic material can be converted into a magnet by rubbing it with a natural magnet. Those men made magnets are known as an artificial magnets.

3. What are the basic properties or behaviors of a magnet?

a. If a magnet is suspended in the air, then one end of the magnet points towards the North of the earth is called the north-seeking pole, and the end which points towards the South of the earth is called the South Seeking pole. This is the directional property of a magnet.

b. Like magnetic poles repel each other and, unlike magnetic poles, attract each other.

4. What do you mean by a uniform magnetic field?

Magnetic fields are said to be uniform if their magnitude and direction are the same at every point in the space. Magnetic field line density of uniform magnetic field is always the same.

5. What do you mean by magnetic field at any point?

The region within which another magnet or magnetic substance can experience a force is called magnetic field.

6. What do you mean by magnetic field line?

A magnetic field line is an imaginary curve around a magnet such that the tangent drawn at any point on the curve gives the direction of magnetic field at that point.

7. What do you mean by week and strong magnetic field?

If the magnetic field lines density is high in a particular region. Then it is called a strong magnetic field.

If the magnetic field line density is low in a particular region. Then it is called a weak magnetic field.

8. Why is a suspended magnet in earth always inclined at some angle while pointing in the direction of earth ?

The magnetic axis of the earth's magnet is inclined at a slight angle of about 15°. That's why a bar magnet always inclined at an angle when suspended.

9. Define the relation between magnetic effect and electric charge.

A static charge will always give a static electric field around it, and a moving charge can provide a magnetic field and electric field around it.

Scientist Orstead experimented on this theory and concluded that there must be a magnetic field around a current-carrying conductor that can deflect a magnetic compass.

The ampere swimming rule can determine the direction of the deflection compass needle.

10. State and explain Ampere's swimming rule.

Consider a man swimming along the direction of electric current over a wire, and a magnetic compass is placed under it. Then the North pole of the magnetic compass needle will be deflected towards his left hand. This law is known as Ampere's swimming rule.

11. On which factors magnetic field produced by a straight current carrying conductor depends on ?

a. The magnetic intensity B is directly proportional to the amount of current flowing through the wire.

b. The strength of the field (B) is inversely proportional to the distance of the measurable point from the current carrying conductor.

*The direction of magnetic field around the straight current carrying conductor can be determined by the right-hand thumb rule.

12. State and explain the right hand thumb rule.

If a current carrying conductor is imagined to be held in our right hand such that our thumb fingers points in the direction of the current, then the curled fingers of our right hand will indicate the direction of the magnetic field.

13. What are the characteristics of the magnetic field line of a current carrying solenoid?

a. Magnetic field lines outside the solenoid are directed from the North Pole to the South Pole, and inside the solenoid, it is directed from the South Pole to the North Pole.

b. Magnetic field inside the solenoid is uniform and strong; outside the solenoid, it is non-uniform and weak.

c. Due to the magnetic field line, if we place a magnetic material inside a current carrying solenoid, it becomes magnetized due to magnetic induction; that's why magnetic field strength also increases.

14. How can we increase the strength of the magnetic field of a current carrying solenoid?

a. If we increase the number of turns of a solenoid, then the magnetic field strength will also be increased.

b. If we increase the amount of current flowing through the current solenoid, then also the magnetic field strength will increase.

c. If a soft iron bar is placed inside the solenoid, then the magnetic field strength will also increase.

To be Remember: We can interchange the pole of the current-carrying solenoid by reversing the current direction.

15. Write some applications of Electromagnet?

a. Electromagnet is widely used in lifting heavy objects or non-touchable things in industries or factories.

b. Electromagnet is widely used in calling bell, loudspeaker, microphone, telephone transmitter, receiver, etc.

The answer to those questions will also be available later on our website.

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Thank You