WORKSHEET 1

CHAPTER 13 – MAGNETISM

A. Tick (✓) the correct option.

1. Which of the following is not the magnetic material?
   a. Steel b. Manganese c. Iron d. Cobalt
2. A magnetic field line is used to find the direction of
   a. south-north. b. a bar magnet. c. a compass needle. d. magnetic field.
3. Most powerful magnets are prepared by
   a. induction method. b. electrical method.
   c. double touch method. d. divided touch method.
4. The strength of an electromagnet can be increased
   a. by increasing the current. b. by reducing the number of turns.
   c. by using thin wire for the coil. d. by keeping it in E-W direction.
5. Which of the following device work on the principle of electromagnetic induction?
   a. Ammeter b. Voltmeter c. Generator d. Galvanometer

B. Fill in the blanks.

1. _____ showed that electricity and magnetism are related phenomenon.
2. The region surrounding a magnet, in which force of a magnet can be detected, is called its _____
3. The strength of magnetic field is directly proportional to _____ passing through the conductor.
4. The magnetic field is _____ inside a solenoid.
5. An electric motor is a device which converts _____ into _____

C. State whether the following statements are true or false.

1. A magnet attracts small pieces of iron due to induced magnetism.
2. An electric motor converts mechanical energy into electrical energy.
3. An electric generator works on the principle of electromagnetic induction.
4. Electromagnets are used to separate magnetic substances from the non-magnetic heap of metal scrap.
5. Magnetic intensity is a scalar quantity.

D. Match the following.

1. Lodestone	electrical energy into mechanical
2. Dry cell produces	used for finding directions.
3. A coil wound cylindrical tube	electromagnet
4. Magnets that have temporary magnetism	solenoid
5. Electric motor	direct current

Name: ..... Teacher's signature: .....

Class: IX Date: .....

E. Answer the following questions.

Very short answer questions

1. What do you understand by poles of magnet?
2. How is the position of neutral point located with the use of a compass needle?

Short answer questions

1. What are electromagnets?
2. What is a magnetic compass?

Long answer questions

1. What are differences between an electromagnet and a permanent magnet?
2. What are various properties of magnetic lines of force?

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. b 2. d 3. b 4. a 5. c

B. Fill in the blanks.

1. Oersted
2. magnetic field
3. current
4. uniform
5. electrical energy, mechanical energy

C. State whether the following statements are true or false.

1. T 2. F 3. T 4. T 5. F

D. Match the following.

1. Lodestone	used for finding directions.
2. Dry cell produces	direct current
3. A coil wound cylindrical tube	solenoid
4. Magnets that have temporary magnetism	electromagnet
5. Electric motor	electrical energy into mechanical

E. Answer the following questions.

Very short answer questions

1. The points on a magnet where the attraction appears to be maximum are called poles of a magnet.
2. When a compass is placed at the neutral point, its needle remains unaffected and rests in any direction.

Short answer questions

1. If a magnet retains the magnetic property till the current flows and as the current is switched off, it loses the magnetic property, such magnets are called electromagnets.

   These are made of soft iron.

2. A magnetic compass is an instrument having a small bar magnet in the form of a needle which can turn freely on a pivot (or pin).

Long answer questions

1. Differences between an electromagnet and a permanent magnet

Parameter	Electromagnet	Permanent magnet
1. Nature of magnetism	It shows temporary magnetism. It produces the magnetic field as long as current flows in its coil.	It shows permanent magnetism, i.e. it retains magnetism in it even when the current is switched off.
2. Polarity	The polarity of an electromagnet can be changed by reversing the direction of the current.	The polarity of a permanent magnet cannot be changed.
3. Strength of the magnetic field	The strength of the magnetic field can be increased or decreased by changing the strength of the current or the number of turns in the coil.	The strength of the magnetic field cannot be changed.
4. Demagnetization	An electromagnet can easily be demagnetized by switching off the current in the solenoid.	It cannot be easily demagnetized.
5. Magnetic field	It can produce a strong magnetic field.	It cannot produce a very strong magnetic field.
6. Nature of material	It is a solenoid with a soft iron core.	It is made of steel.

2. Properties of magnetic lines of force

   i. Each line is a closed and continuous curve.

   ii. These lines are directed from north pole to south pole outside the magnet and from south pole to north pole inside the body of the magnet.

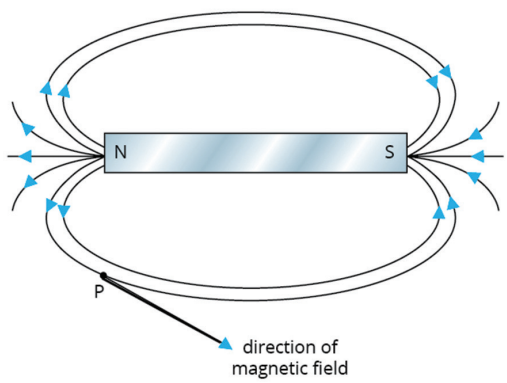
   iii. The lines are crowded near the magnetic poles where the magnetic field is strong and are far apart near the middle of the magnet where the magnetic field is weak.

   iv. The tangent at any point on the magnetic field line gives the direction of magnetic field at that point (Fig.).

   v. Two magnetic lines of force do not intersect each other. If two magnetic lines of force intersect, there would be two directions of magnetic field at the same point, which is not possible.

   vi. The magnetic lines of force contract longitudinally and widen laterally.

   vii. Although magnetic lines of force are not real, yet they represent a magnetic field which is real.



Direction of magnetic field at a point P