WORKSHEET 2

CHAPTER 13 – MAGNETISM

A. Tick (✓) the correct option.

1. How many poles does a bar magnet have?
   a. 4 b. 2 c. 3 d. 1
2. How does the magnetic field change on increasing the distance from the conductor?
   a. Increases b. Decreases c. Remains same d. None of these
3. A device used to measure small currents due to changing magnetic field is
   a. galvanometer. b. ammeter. c. voltmeter. d. potentiometer.
4. Electromagnets are made of
   a. steel. b. iron. c. nickel. d. soft iron.
5. An imaginary line bisecting the effective length of a magnet is called the
   a. magnetic axis. b. pole. c. effective axis. d. magnetic equator.

B. Fill in the blanks.

1. Like magnetic poles _____ each other; unlike magnetic poles _____ each other.
2. An electromagnet is a solenoid with _____ core.
3. The polarity of an electromagnet can be changed by reversing the direction of _____
4. The magnetism is minimum _____ of a bar magnet.
5. A freely suspended magnet will rest in _____ direction.

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

1. Magnetic poles always exist in pair. It is impossible to have a single pole alone.
2. Magnetic field lines cannot intersect each other.
3. A magnet attracts small pieces of iron due to induced magnetism.
4. When the north pole of a magnet is brought near the north pole of another magnet, they get repelled.
5. A soft iron bar is magnetized if an alternating current is passed through a coil wound round the bar.

D. Match the following.

1. SI unit of magnetic field	small bar magnet that rotates
2. Magnetic field inside the solenoid	tesla
3. Compass needle	temporary magnet
4. Solenoid	always occur in pairs
5. Magnetic poles	uniform

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

Class: IX Date: .....

E. Answer the following questions.

Very short answer questions

1. State whether the earth's magnetic field is uniform or non-uniform in a limited space.
2. State one way in which magnetisation can be lost.

Short answer questions

1. State the uses of magnetic compass.
2. Write any two facts in support of earth's magnetic field.

Long answer questions

1. Briefly explain the construction and working of an electric bell.
2. Write in brief about the earth's magnetic field.

ANSWERS

WORKSHEET 2

A. Tick (✓) the correct option.

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

B. Fill in the blanks.

1. repel, attract
2. soft iron
3. electric current
4. in the middle
5. earthing

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

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

D. Match the following.

1. SI unit of magnetic field	tesla
2. Magnetic field inside the solenoid	uniform
3. Compass needle	small bar magnet that rotates
4. Solenoid	temporary magnet
5. Magnetic poles	always occur in pairs

E. Answer the following questions.

Very short answer questions

1. The earth's magnetic field is uniform in a limited space.
2. Magnetisation can be lost by heating.

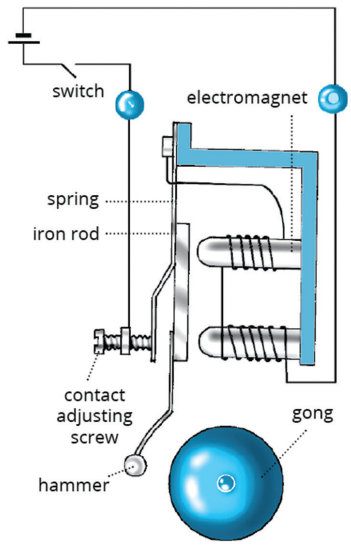
Short answer questions

1. i. To find the magnetic north-south direction.
   ii. To find the direction of magnetic field at a point.
   iii. To test the polarity of a magnet.
2. Two facts in support of earth's magnetic field are as follows:
   i. When a magnetic needle is suspended freely, it always rests in geographical north-south direction.
   ii. When an iron rod is buried inside earth in north-south direction, it becomes a magnet.

Long answer questions

1. The most common application of an electromagnet is in an electric bell. Figure shows a simple electric bell. It consists of an electromagnet, an armature, a contact adjusting screw, a gong and a hammer. The armature consists of a soft iron rod mounted on a spring. One end of the iron rod presses against the top of the contact adjusting screw.

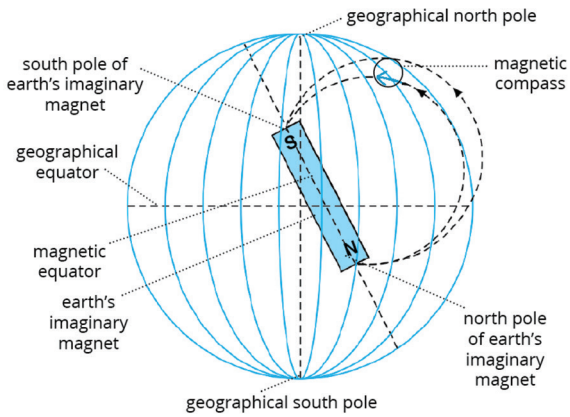
   When the switch is pressed on, current flows in the electromagnet. It then attracts the iron rod towards itself, causing the hammer to strike the gong. At the same time, the armature loses contact with the screw and the current is switched off. This causes the electromagnet to lose its magnetism and the armature springs back to its original position to close the circuit once again. Current flows again and the cycle repeats itself till the current is switched off.



Electric bell

2. We know that a freely suspended bar magnet always points in the north-south direction. This can happen only if some magnetic force acts on it and makes it lie along north-south direction. It is now known that our planet earth also shows magnetism. **It is the magnetic force of earth's magnetism which acts on a freely suspended bar magnet and makes it point in the north-south direction.** Similarly, it is the earth's magnetic field which makes the magnetic needle of a compass to always point towards the north of earth.

   The earth behaves like a giant magnet present along its diameter. The south pole of the earth's imaginary magnet is in the direction of geographic north pole. The north pole of the earth's imaginary magnet is in the direction of geographic south pole.



Earth's magnetic field