

# NCERT solution for Magnetism

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## Question 1

Fill in the blanks in the following:

- (i) Artificial magnets are made in different shapes such as \_\_\_\_, \_\_\_\_ and \_\_\_\_
- (ii) The Materials which are attracted towards a magnet are called \_\_\_\_.
- (iii) Paper is not a \_\_\_\_ material.
- (iv) In olden days, sailors used to find direction by suspending a piece of \_\_\_\_.
- (v) A magnet always has \_\_\_\_ poles (i.e. North Pole and South Pole).

## Answer

- a) bar-magnet, cylindrical, horse-shoe magnet
- b) magnetic materials
- c) Magnetic
- d) bar magnet
- e) two

## Question 2

State whether the following statements are true or false.

- (i) A cylindrical magnet has only one pole.
- (ii) Artificial magnets were discovered in Greece.
- (iii) Similar poles of a magnet repel each other.
- (iv) Maximum iron filings stick in the middle of a bar magnet when it is brought near them.
- (v) Bar magnets always point towards North-South direction.

(vi) A compass can be used to find East-West direction at any place.

(vii) Rubber is a magnetic material.

### Answer

- a) false. It has two poles
- b) False. Natural magnets are discovered in Greece
- c) True
- d) false
- e) True
- f) True
- g) False

### Question 3

It was observed that a pencil sharpener gets attracted by both the poles of a magnet although its body is made of plastic. Name a material that might have been used to make some part of it.

### Answer

Pencil sharpener has the plastic body but The blade of the pencil sharpener is made of iron. Iron is a magnetic in nature. That is the reason sharpener gets attracted by the poles of a magnet.

### Question 4

Column I shows different positions in which one pole of a magnet is placed near that of the other. Column II indicates the resulting action between them for each situation. Fill in the blanks.

Column I	Column II
N-N	
N-	Attraction
-N	Attraction
N-S	

### Answer:

Column I	Column II
N-N	Repulsion

N-S	Attraction
S-N	Attraction
N-S	Repulsion

### Question 5

Write any two properties of a magnet.

### Answer

Some of the properties are

1. Each magnet has two poles i.e. North Pole(N) and South Pole(P)
2. Opposite poles of two magnet attract each other while like poles of two magnet repel each other.

N-N	Repulsion
N-S	Attraction
S-N	Attraction
N-S	Repulsion

3. A freely suspended magnet always aligns in N-S direction.

### Question 6

Where are poles of a bar magnet located?

### Answer

The two ends of the bar magnet represent the two poles.

### Question 7

A bar magnet has no markings to indicate its poles. How would you find out near which end is its north pole located?

### Answer

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Hang up the magnet by a cotton thread so that it hangs freely. When it comes to rest, we notice that the magnet is lying in a North - South direction.

Magnetic compass works on the same principle. In past it was used by sailors or travelers to find directions.

### Question 8

You are given an iron strip. How will you make it into a magnet?

### Answer

This can be achieved using touch and stroke method. We will need a bar magnet to achieve this

**Step 1:** Take a rectangular piece of iron. Place it on the table.

**Step 2:** Take a bar magnet and place one of its poles near one edge of the bar of iron.

**Step 3:** Without lifting the bar magnet, move it along the length of the iron bar till you reach the other end.

**Step 4:** Lift the magnet and bring the pole (the same pole you started with) to the same point of the iron bar from which you began

**Step 5:** Move the magnet again along the iron bar in the same direction as you did before.

**Step 6:** Repeat this process about 30-40 times.

Very soon iron strip will become magnet

You can check it by bringing few pins near to the iron piece

### Question 9

How is a compass used to find directions?

#### Answer

A **compass** has a magnetic needle attached to it which can rotate freely. A freely suspended magnet always aligns in N-S direction. The red coloured magnetic needle points to North direction. Once we know North direction, we can easily find out the other directions.

E.g. If North is upwards, South is downward side, East will be on right hand side and West shall be on left hand side.

### Question 10

A magnet was brought from different directions towards a toy boat that has been floating in water in a tub. Affect observed in each case is stated in Column I. Possible reasons for the observed affects are mentioned in Column II. Match the statements given in Column I with those in Column II.

Column I	Column II
Boat gets attracted towards the magnet	Boat is fitted with a magnet with north pole towards its head
Boat is not affected by the magnet	Boat is fitted with a magnet with south pole towards its head
Boat moves towards the magnet if north pole of the magnet is brought near its head	Boat has a small magnet fixed along its length
Boat moves away from the magnet when north pole is brought near its head	Boat is made of magnetic material
Boat floats without changing its direction.	Boat is made up non-magnetic material

#### Answer:

<b>Column I</b>	<b>Column II</b>
Boat gets attracted towards the magnet	Boat is made of magnetic material
Boat is not affected by the magnet	Boat is made up non-magnetic material
Boat moves towards the magnet if north pole of the magnet is brought near its head	Boat is fitted with a magnet with south pole towards its head
Boat moves away from the magnet when north pole is brought near its head	Boat is fitted with a magnet with north pole towards its head
Boat floats without changing its direction.	Boat has a small magnet fixed along its length