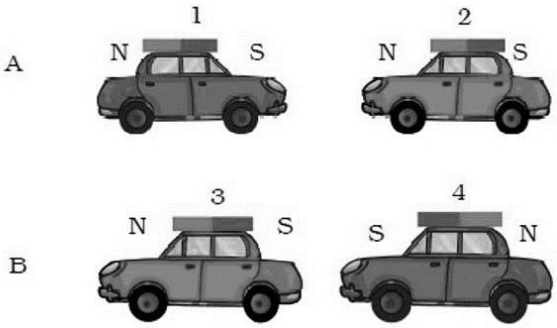
INDIAN SCHOOL AL WADI AL KABIR		
Class: VI	**DEPARTMENT: SCIENCE 2023-24**	**DATE: 09-11-2023**
WORKSHEET NO: 11 WITH ANSWERS	**TOPIC: FUN WITH MAGNETS**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I. OBJECTIVE-TYPE QUESTIONS:

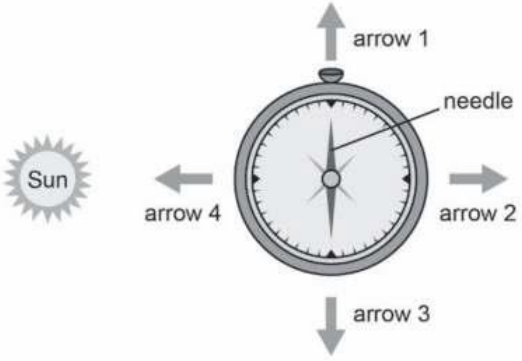
1. Observe the pictures A and B given in the figure carefully



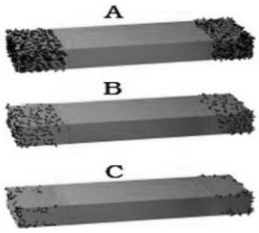
Which of the following statements is correct for the above-given pictures?
(a) In A, cars 1 and 2 will come closer; in B, cars 3 and 4 will come closer.
(b) In A, cars 1 and 2 will move away from each other; in B, cars 3 and 4 will move away.
(c) In A, cars 1 and 2 will move away; in B, 3 and 4 will come closer to each other.
(d) In A, cars 1 and 2 will come closer; in B, 3 and 4 will move away from each other.

2. The picture shows a magnetic compass and the Sun to its east. The four arrows point towards different directions.
Which arrow is pointing towards the south?

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

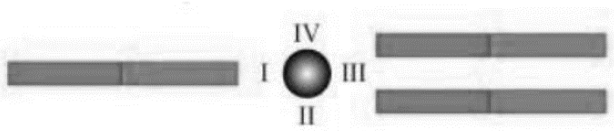


3. Three magnets A, B and C were dipped one by one in a heap of iron filing. The given figure shows the amount of iron filing sticking to them.
The strengths of these magnets will be:



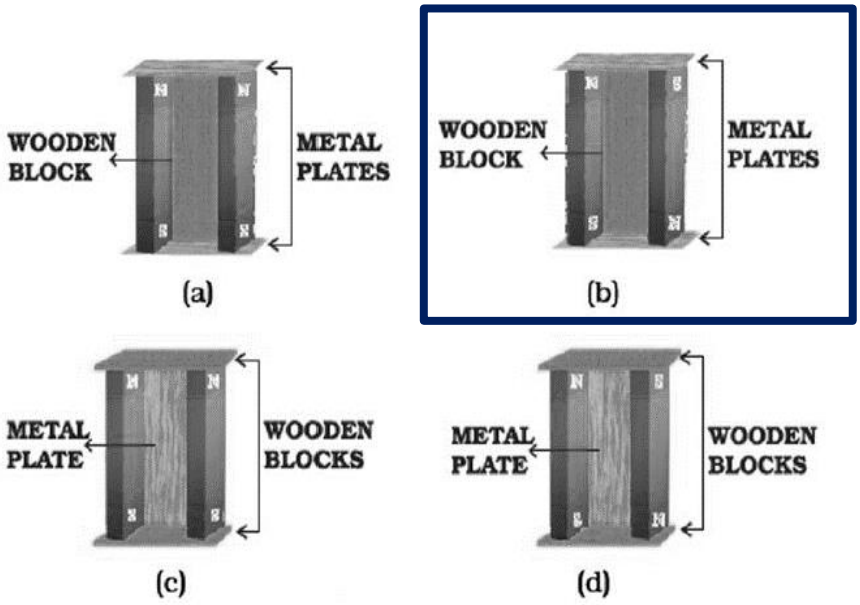
a. A > B > C
b. A < B < C
c. A = B = C
d. A < B > C

4. In an experiment, Rodger places a small iron ball between three magnets of equal strength, as shown in the figure. The magnets are at equal distances from the ball. The ball will move towards a point:



a. I
b. II
c. III
d. IV

5. The arrangement to store two magnets is shown in figures (a), (b), (c) and (d). Which one of them is the correct arrangement?



6. Which of the following gets attracted to a magnet:
a. Plastic comb
b. Iron clip
c. Paper notebook
d. Silver cup

For the following questions, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii), and (iv) as given below

i) Both A and R are true and R is the correct explanation of the assertion.

ii) Both A and R are true but R is not the correct explanation of the assertion.

iii) A is true but R is false.

iv) A is false but R is true

7. **Assertion (A):** Heat can destroy the magnetic properties of a magnet.
Reason (R): There is a maximum attraction in the middle of the bar magnet.
Ans: iii) A is true but R is false.

8. **Assertion (A):** An iron piece is placed along the poles of the horseshoe magnet while storing.
Reason (R): Magnets become weak if they are not stored properly.

Ans: i) Both A and R are true and R is the correct explanation of the assertion.

9. **Assertion (A):** Materials that are not attracted towards magnets are called non-magnetic.
Reason (R): Each magnet has two magnetic poles-North and South.
Ans: ii) Both A and R are true but R is not the correct explanation of the assertion.

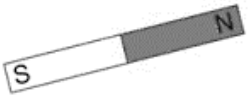
10. **Assertion (A):** A Ring-shaped magnet does not have a north and south pole.
Reason (R): A magnetite is a natural magnet.
Ans: iv. A is false but R is true

II. VERY SHORT QUESTIONS (2M):

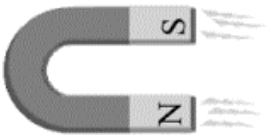
1. You are provided with two identical metal bars. One out of the two is a magnet. How would you identify the magnet? **[Hint- Take some iron filings and move the iron bars over these iron filings. If iron filings are attracted very strongly at poles, then it is a magnet and if they are not attracted, then it is simply an iron bar.]**

2. Draw neat and labelled diagrams of a bar magnet and a U-shaped magnet and mark their poles.

Hint:



Bar magnet



U- shaped magnet

3. Shyam is a carpenter. While working, a few iron nails and screws got mixed with the wooden shavings. How can you help him in getting the nails and screws back from the scrap without wasting his time searching with his hands?
[Hint- With the help of a magnet he can attract all iron nails and screws and can separate them from the wooden shavings. As iron nails and screws are made of iron which is a magnetic material and will get attracted to the magnet, whereas wooden shavings are non-magnetic.]

4. Why magnets should be kept away from mobiles, computers and compact disks (CDs)?
[Hint: Electrical appliances such as televisions, mobiles, CDs, and computers have magnetic storage devices inside them. When we bring external magnets near these appliances, the external magnets will interfere with the magnetic components of the appliances and may damage them.]

5. Classify the following as magnetic and nonmagnetic material:
Iron, plastic, rubber, glass, mirror, cobalt **[Hint: Magnetic material-iron, cobalt**
Non-magnetic material-plastic, rubber, glass, mirror]

III. SHORT ANSWER TYPE QUESTIONS: (3M)

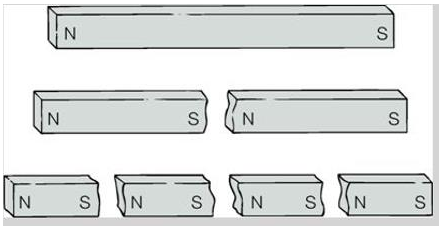
1. A bar magnet has no markings to indicate its poles. How can you find out the location of the North Pole? **[Hint: The location of the poles of a magnet can be determined by suspending it freely. A freely suspended bar magnet always points in a north−south direction. The end that points towards the north direction is the north pole of the magnet while the end that points towards the south direction is the south pole of the magnet.]**

2. What will happen if a magnet is brought near a magnetic compass? **[Hint: When a magnet is brought near a compass, then the magnet will attract or repel the magnetic needle of the compass due to which the compass needle will be disturbed from its usual north-south direction. The compass needle will point in another direction.]**

3. What is the correct way of storing bar magnets and horse magnets?
i) Bar magnet **[Hint: Two-bar magnets should be placed inside a wooden box so that: a) the poles of two magnets lie opposite to each other.**
b) They must be separated by a piece of wood while two pieces of soft iron should be placed across their ends.]
ii) Horseshoe magnet. **[Hint. - Horseshoe magnet is kept along with an iron piece across its two poles.]**

4. How can magnets be used to separate iron from junkyards? **[Hint: Magnets attract materials like iron, cobalt and nickel. In junkyard objects made of such magnetic material can be separated by causing them to attract to a strong magnet. Therefore, a crane with a strong magnet can be used to separate magnetic materials from the junk.]**

5. What happens to the poles of a magnet when we break a magnet into two pieces? **[Hint: The two poles of a magnet cannot exist independently. If we cut or break a magnet into two, we cannot isolate the North Pole and South Pole. We could get two pieces, each having a North pole and a South pole.]**



IV. LONG ANSWER TYPE QUESTIONS. (5M):

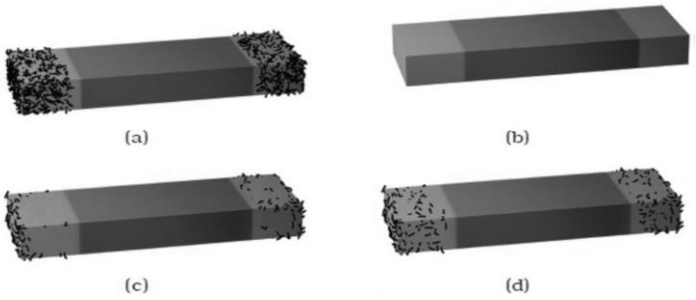
1. What is a compass? Describe the use of a compass.
[Hint: A compass is a device that indicates direction. It is a small glass box with a magnetic needle placed on a dial. The magnetised needle is pivoted and can rotate freely. Usually, different colours are used to point the ends of the needle to identify the north and the south poles. The dial has directions marked on it. When the compass is kept at the position of rest, the needle points towards the north and south direction. This property is used in navigating directions.]

2. Describe the steps involved in magnetising an iron strip with the help of a magnet. Draw a diagram to support your explanation.
[Hint-: (i) Take an iron strip which is to be magnetised.
(ii) Keep it on a wooden table.
(iii) Hold one end of a bar magnet in your hand and keep the other end of the bar magnet near one edge of the iron strip.
(iv) Without lifting, move it along the length of the iron strip till you reach the other edge.
(v) After reaching the end of the iron strip, lift the bar magnet bring it to the same position and repeat the process again and again.
(vi) Bring some iron filings near the iron strip to check whether it has become a magnet. If not, continue the same process for some more time.]

3. State uses of magnets**. [Hint: ATM, credit and debit cards have a magnetic strip that stores information and enables transactions of money, Magnets are used in junkyards to separate iron objects from other waste materials. The magnetic compass is used to find directions. It has a small magnetic needle at its centre. Maglev or Magnetic levitation trains have been developed in Japan. These trains are without wheels and move a little above the rails.]**

V. SOURCE-BASED/ CASE STUDY-BASED QUESTIONS:

1. Four identical iron bars were dipped in a heap of iron filings one by one. The figure shows the amount of iron filings sticking to each of them.



i. Which of the iron bars is most likely to be the strongest magnet? [**Hint: Iron bar (a) is likely to be the strongest magnet since more amount of iron filings have stuck to the magnet than any other bars.]**

ii. Which of the iron bars is not a magnet? Justify your answer. **[Hint: Iron bar (b) is not a magnet since none of the iron filings sticks to the magnet.]**

iii. Which part of a bar magnet attracts iron filings the most? **[Hint: Poles, because magnetic strength is maximum at the poles of the magnet]**

iv. If the iron bar b is rubbed with a permanent magnet. Can it attract iron filings? **[Hint: Yes, when an iron bar is rubbed with a permanent magnet, then the iron bar will become a magnet.]**

PREPARED BY Ms. SHRUTI MUKUNDAN	CHECKED BY HoD SCIENCE