

CHAPTER - 1

THE WORLD OF METALS AND NON-METALS

NCERT FOLDER

VERY SHORT ANSWER TYPE (2 MARKS)

① Define malleability.

Ans. The property of a metal by which it can be beaten into thin sheets.

② Why are cooking pot handles made of Bakelite/wood?

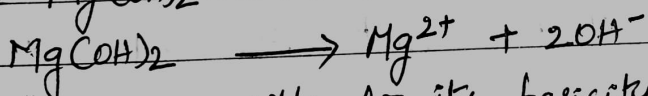
Ans. Cooking pot handles are made of Bakelite or wood because they are poor conductors of heat. They prevent heat from reaching our hands, making it safe to hold the pot while cooking.

③ Name the most abundant metal in the crust.

Ans. Aluminium (Al) is the most abundant metal in Earth's crust.

④ Write ion responsible for basicity of $Mg(OH)_2$ in water.

Ans. When $Mg(OH)_2$ dissolves in water, it dissociates as:



The ion responsible for its basicity is the hydroxide ion (OH^{-}).

⑤ Which metals are used for jewellery due to lustre and non-tarnish?

Ans. Gold, silver and platinum are used to make jewellery.

⑥ Which non-metal disinfects drinking water?

Ans. Chlorine is a non-metal which disinfects drinking water by killing germs.

⑦ Which non-metal is added to table salt to prevent goitre?
Ans. Iodine is a non-metal is added to table salt to prevent goitre.

⑧ What is the process called when a metal is coated with zinc to prevent rusting?

Ans. Galvanising is a process in which iron is coated with zinc, which shields the metal and sacrifices itself first if corrosion starts.

SHORT ANSWER TYPE (3 MARKS)

① Differentiate malleability and ductility with one example each.

Ans.

Malleability

The property of a metal by which it can be beaten into thin sheets.

Ex: Gold

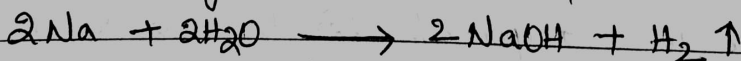
Ductility

The property of a metal by which it can be drawn into thin wires.

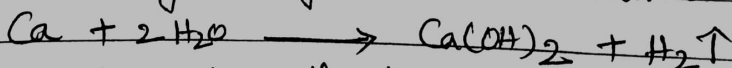
Ex: Copper

② Write reactions for metals with water / steam :
(Na, Ca, Mg, Fe (one each)).

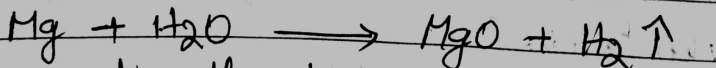
Ans. Sodium violently react with cold water.



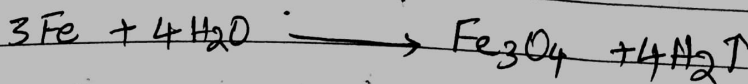
Calcium reacts slowly with cold water



Magnesium reacts with hot water



Iron react with steam



③ State two conditions for rusting and one method to prevent it.

Ans

Conditions required for rusting :

① The presence of water (moisture)

② Presence of Oxygen (air)

Prevention method:

Painting the iron surface to prevent contact with air and moisture.

④ Why are Al and Cu preferred for electrical wiring?
Ans Aluminium and Copper are preferred for electrical wiring because they are good conductors of electricity and are ductile, so they can be drawn into thin wires. They also have low electrical resistance and are resistance to corrosion.

⑤ Give one everyday use each: helium and neon.

Ans Use of helium (He): Lifts balloons and drives where a light, non-reactive gas is needed.

Use of neon (Ne): Create glowing signboards.

⑥ Why is Copper preferred for electrical wiring?

Ans Copper is preferred for electrical wiring because:

- ① It is good conductor of electricity.
- ② It is ductile. So it can be drawn into thin wires.

⑦ Give one electrical use of non-metal.

Ans Graphite (a form of carbon) is used to make electrodes in batteries and electrolysis because it is good conductor of electricity.

LONG ANSWER TYPE (5 MARKS):

① Describe the properties and uses of metals in daily life. How do these properties make metals suitable for various applications?

Ans

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Properties of metals	Use in daily life
* Malleable: Can be beaten beaten into thin sheets without breaking.	Making sheets, foils, utensils
* Ductile: Can be drawn into thin wires.	Making electrical wires.
* Strong and hard: Can withstand heavy loads and wear.	Buildings, bridges, vehicles, machinery.
* Lustrous (shiny): Gives an attractive appearance.	Jewellery and decorative items.
* Sonorous: Produces a ringing sound when struck.	Bells and musical instruments.
* Good conductors of heat: Helps in fast and uniform heating.	Cooking utensils.
* Good conductors of electricity: Allows electrical current to flow easily.	Electrical wires (Copper, Aluminium)

② Of the three metals X, Y and Z. X reacts with cold water, Y with hot water and Z with steam only. Identify X, Y and Z and also arrange them in order of increasing reactivity.

Ans.

Based on their reactions with water:

X = Calcium (Ca) - reacts with cold water.

Y = Magnesium (Mg) - reacts with hot water.

Z = Iron (Fe) - reacts with steam only.

Order of increasing reactivity:

$Fe < Mg < Ca$

- ③ Equations and tests, show that metal oxides are generally basic and non-metal oxides are generally acidic.

Ans. Metal oxides are generally basic.

Example equation:



The magnesium hydroxide solution is basic.

Test:

- * Red litmus paper turns blue, showing the solution is basic.

Non-metal oxides are generally acidic.

Example equation:



Carbonic acid is an acid.

Test:

- * Blue litmus paper turns red, showing the solution is acidic.

Conclusion:

- * Metal oxides are generally basic because they form bases in water and turn red litmus blue.
- * Non-metal oxides are generally acidic because they form acids in water and turn blue litmus red.

- ④ Describe the process of rusting of iron and explain how it can be prevented.

Ans. Rusting is the slow formation of a reddish-brown coating of hydrated iron (III) oxide ($\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$) on the surface of iron when it is exposed to air (oxygen) and moisture (water).

Prevention of rusting:

Rusting can be prevented by stopping iron from coming into contact with air and moisture.

Common methods include:

- * Painting the iron surface

- * Oiling or greasing
- * Galvanisation (coating iron with zinc)
- * Electroplating with metals such as chromium or tin.
- * Alloying iron to make stainless steel.

⑤ Explain the role of Non-metals in agriculture, industry, and health. Provide examples of how non-metals are utilized in these fields.

Ans. Agriculture:

- Nitrogen (N_2) is used to manufacture fertilizers such as urea and ammonium nitrate, which help plant grow.
- Phosphorous (P) is used in phosphate fertilizers to promote root and seed development.

Industry:

- Oxygen (O_2) is used in welding and steel manufacturing.
- Chlorine (Cl_2) is used to purify drinking water and in the manufacture of plastics, paper and bleaching powder.
- Carbon (graphite) is used as electrodes in batteries and electrolysis because it conducts electricity.

Health:

- Oxygen (O_2) is supplied to patients with breathing difficulties in hospitals.
- Iodine (I_2) is used as an antiseptic to prevent infection in wounds and also in the prevention of goitre disease.
- Chlorine (Cl_2) is used to disinfect drinking water and swimming pools, helping to prevent water-borne diseases.

Class work writingVery short answer :

2, 4

Short answer :

1, 2, 3, 4, 6

Long answer :

2, 3, 4

Book markingVery short answer :

① - Pg.No. 2.2, ③ - Pg.no. 2.1

⑤ - Pg.no. 2.10, ⑥, ⑦ - Pg.no. 2.10

⑧ - Pg.no. 2.7.

Short answer :

⑤ - Pg.no. 2.10, ⑦ - Pg.no. 2.3

Long answer :

① - Pg.no. 2.2, 2.3 and 2.10.

⑤ - Pg.no. 2.10.