

Subject – Science

Class- 8

Topic – chapter-4

### EXERCISES

Use Cordova Smart Class Software on the smart board in class to do these exercises.

**A. Tick (✓) the correct options:**

- The elements that have some properties of metals and some properties of non-metals are called  
(a) ores  (b) metal mix  (c) metalloids  (d) gangue
- The only metal that exists as liquid at room temperature is  
(a) mercury  (b) chlorine  (c) bromine  (d) gold
- The property of metals that allows them to be hammered into thin sheets is called \_\_\_\_\_  
(a) ductility  (b) hardness  (c) malleability  (d) sonority
- The oxides of non-metals are generally \_\_\_\_\_ in nature.  
(a) acidic  (b) basic  (c) neutral  (d) both (a) and (c)
- Metals react with water to form \_\_\_\_\_ gas.  
(a) hydrogen  (b) nitrogen  (c) oxygen  (d) ozone

**B. Fill in the blanks:**

- The property that allows the metals to be drawn into thin wires is called \_\_\_\_\_.
- Metals like \_\_\_\_\_ is a poor conductor of heat.
- \_\_\_\_\_ is the hardest known substance in nature.
- \_\_\_\_\_ is a non-metal that is a good conductor of electricity.
- Silver objects turn black due to the formation of a layer of \_\_\_\_\_ on their surfaces.

**C. Match the following:**

**Column A**

- Platinum
- Sulphur
- Chlorine
- Copper
- Nitrogen

**Column B**

- used for disinfecting water
- used to preserve body organs
- used in making calorimeters
- used in skin ointments
- used to make electrodes in electrolytic cells

**D. State whether the following statements are True (T) or False (F). Rewrite the false statements correctly:**

- Elements are substances that can be separated by chemical methods.
- We use silver wires for making solar cells.
- Carbon monoxide is a neutral oxide.
- Diamond is a bad conductor of heat.
- Hydrogen gas burns in air with a 'pop' sound.
- Metals are extracted from their ores.
- Magnesium hydroxide turns red litmus blue.

**E. Very Short Answer Questions:**

- What happens when copper vessel is exposed to moist air for a long time?

2. Name the second most abundant element in the earth's crust.
3. What is formed when metals react with oxygen?
4. Name the metal that is used in household electric wiring.
5. Name one metal that is highly unreactive.
6. Name (a) a solid metal and (b) a liquid metal at room temperature.

**F. Short Answer Type-I Questions:**

1. What happens when the following metals react with dilute hydrochloric acid?  
(a) magnesium      (b) aluminium
2. Which of the following elements would form (i) acidic oxides and (ii) basic oxides?  
(a) carbon      (b) magnesium      (c) sulphur      (d) zinc      (e) iron
3. What is meant by 'rusting of iron'?
4. What will be the change in the colour of copper sulphate solution when magnesium is added to it? Write a balanced chemical equation for the same.

**G. Short Answer Type-II Questions:**

1. Give reasons for the following:  
(a) Electric wires are made of copper.  
(b) Gold and silver are used for making jewellery.  
(c) Graphite is used for making electrodes in electric cells.
2. In evening, Sonu plays guitar for the poor children of his colony. They all enjoy listening to the guitar. Sonu even teaches some of them how to play guitar, free of cost.  
(a) Name the property because of which strings in guitar are made of metal.  
(b) What do we learn from Sonu?

**H. Long Answer Questions:**

1. State any five physical properties on the basis of which metals can be distinguished from non-metals.
2. State any three physical and two chemical properties to prove that copper is a metal.

**I. HOTS (Higher Order Thinking Skills) Questions:**

1. Can we store lemon pickle in an aluminium container? Give reason for your answer.
2. Why does sodium react vigorously with water?

**J. Practical Skill Based Question:**

What happens when a piece of aluminium foil is added to a basic solution of sodium hydroxide? Give the chemical equation of the reaction. What happens when you bring a burning matchstick near the mouth of test tube?

## Chapter 4: Materials: Metals and Non-metals

### Multiple Choice Questions

1. (a)      2. (c)

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### Multiple Choice Questions

1. (a)      2. (a)

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### EXERCISES

#### Tick (✓) the correct options:

1. (c)      2. (a)      3. (c)      4. (a)      5. (a)

#### Fill in the blanks:

1. ductility      2. bismuth      3. Diamond      4. Graphite  
5. silver sulphide

#### Match the following:

1. (e)      2. (d)      3. (a)      4. (c)      5. (b)

#### State whether the following statements are True (T) or False (F). Rewrite the false statements correctly:

1. F, correct statement – Elements are substances that cannot be separated by chemical methods.
2. F, correct statement – We use silicon for making solar cells.
3. T
4. F, correct statement – Diamond is a good conductor of heat.
5. T
6. T      7. T

**E. Very Short Answer Questions:**

1. Copper vessel loses its shine.
2. Silicon
3. Basic oxides
4. Copper
5. Gold
6. (a) Iron (b) Mercury

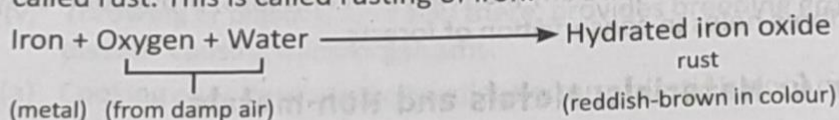
**F. Short Answer Type-I Questions:**

1. (a) Magnesium reacts with dilute hydrochloric acid to form magnesium chloride and hydrogen gas.  
(b) Aluminium reacts with dilute hydrochloric acid to form aluminium chloride and hydrogen gas.

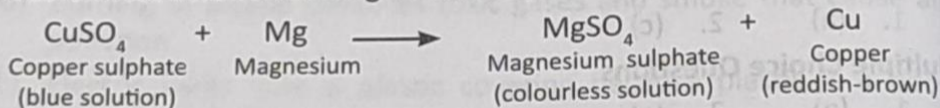
2. (i) Carbon and sulphur will form acidic oxides because these two are non-metals.

(ii) Magnesium, zinc and iron will form basic oxides because these three are metals.

3. When an iron object is left in damp air (or moisture) for a considerable amount of time, it gets covered with a reddish-brown flaky substance called rust. This is called rusting of iron.



4. A colourless solution of magnesium sulphate will be obtained.



**G. Short Answer Type-II Questions:**

1. (a) Electric wires are made of copper because it is a good conductor of electricity.  
(b) Gold and silver are used for making jewellery because they are lustrous, highly malleable and ductile.  
(c) Graphite is used for making electrodes in electric cells because it is a good conductor of electricity.
2. (a) Sonority  
(b) Care for the poor and needy, and spreading happiness

**H. Long Answer Questions:**

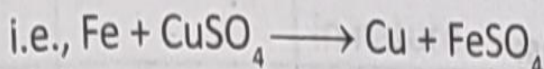
1. (i) Metals are solid at room temperature, except mercury which is liquid at room temperature.  
(ii) Metals are malleable, i.e., they can be beaten into thin sheets.  
(iii) Metals are ductile, i.e., they can be drawn into thin wires.  
(iv) Metals are lustrous.  
(v) Generally, metals are hard.

## 2. Physical properties:

- (i) Copper is malleable.
- (ii) Copper is ductile.
- (iii) Copper is good conductor of heat.

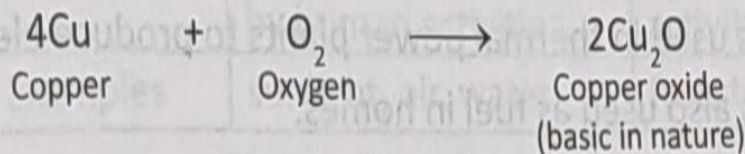
## Chemical properties:

- (i) Copper shows displacement reaction.



(here, more reactive metal (Fe) displaces less reactive metal (Cu) from  $\text{CuSO}_4$  solution)

- (ii) Copper reacts with oxygen to form basic oxides.

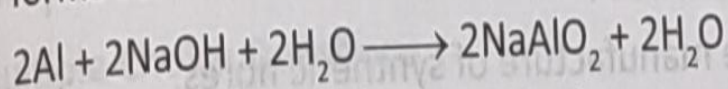


## I. HOTS (Higher Order Thinking Skills) Questions:

1. We cannot store lemon pickle in an aluminium container because lemon contains acid and aluminium being a highly reactive metal, reacts even with the mild acid and forms poisonous salts.
2. Sodium reacts vigorously with water because it is highly reactive.

## J. Practical Skill Based question:

When aluminium is added to the basic solution of sodium hydroxide, it forms sodium aluminate and release hydrogen gas.



We observe tiny bubbles of hydrogen gas in the solution. On bringing a burning matchstick near the mouth of test tube, the gas catches fire and burns with a pop sound.