

## Class 8 Chapter 4 - Materials Metals and Non-Metals Important Questions with Answers

**Q1:** Name two soft metals which can be cut with a knife.

**Answer:**

Metals that can be cut with a knife are sodium and potassium.

**Q2:** Which non-metal is essential for our life and all living beings inhale it during breathing?

**Answer:**

Oxygen is a non-metal that plants and animals use to breathe. It is necessary for our survival as well.

**Q3:** Name two major non-metals which are present in fertilisers and enhance the growth of plants.

**Answer:**

Nitrogen and phosphorus are non-metals that are found in fertilisers and help plants grow.

Plants require nitrogen to produce a lot of leaf growth and vibrant green colour. Plants utilise phosphorus to help them create new roots, seeds, fruit, and blooms. Phosphorus is a chemically very stable element.

**Q4:** Which non-metal is used to disinfect water?

**Answer:**

Chlorine is a non-metal that is used in water disinfection.

**Q5:** A purple coloured non-metal forms a brown solution in alcohol which is applied on wounds as an antiseptic. Name the non-metal.

**Answer:**

Iodine is a non-metallic element with a dark violet natural colour that is essential to human metabolism. As a pre and postoperative antiseptic, iodine is commonly used in an alcohol solution (called tincture of iodine) or as Lugol's iodine solution.

Iodine is bactericidal, fungicidal, tuberculocidal, virucidal, and sporicidal in a short amount of time.

**Q6:** Zinc sulphate forms a colourless solution in water. Will you observe any colour on adding copper turning in it?

**Answer:**

Copper has a lower reactivity. As a result, adding it to a zinc sulphate solution does not remove zinc from the salt solution. As a result, the displacement reaction does not occur.

**Q7:** Why are bells made of metals?

**Answer:**

Metals, rather than wood, are used to make bells because metals can emit sound when struck with a solid object, i.e. they are Sonorous. As a result, when the bell rings, we will be able to hear it well.

**Q8:** Which liquid metal is used for making thermometers?

**Answer:**

At room temperature, mercury is the only metal in a liquid state. Mercury is used in thermometers for its high coefficient of expansion. Thermometers, barometers, manometers, sphygmomanometers, float valves, mercury switches, mercury relays, fluorescent lamps, and other devices all contain mercury.

Mercury is used in a variety of items, including switches and batteries since it is a good conductor of electricity.

**Q9:** Which of the following metals can displace the other two metals from their salt solutions? zinc, iron, copper

**Answer:**

The given reactive order is  $\text{Zinc} > \text{Iron} > \text{Copper}$

As shown, zinc is the most reactive metal and copper is the least reactive metal of the three metals, with iron's reactivity falling in between these. As a result, zinc metal can displace the other two metals from salt solutions.

## Short Answer Type Questions

**Q1:** Paheli bought a statue made of copper. To her surprise, it acquired a dull green coating after a couple of months. Explain the reason.

**Answer:**

The green material is a mixture of copper hydroxide and copper carbonate that forms when copper reacts with moist air (water, oxygen and carbon dioxide).

A copper statue develops a dull green coating after being exposed to moist air for an extended period of time. Copper Hydroxide[ $\text{Cu}(\text{OH})_2$ ] and Copper Carbonate[ $\text{CuCO}_3$ ] are generated when copper combines with damp air, resulting in a dull green covering. This green coating is generally referred to as 'Basic Copper Carbonate,' and the process of green coating production on copper objects is referred to as copper corrosion.

**Q2:** In Fig 4.1 you find that the bulb glows when an iron nail is placed between two ends of wire. Complete the following sentences on the bases of this fact.



Fig 4.1

- (a) \_\_\_\_\_ is a metal.  
(b) Metals are good \_\_\_\_\_ of electricity.

**Answer:**

- (a) Iron is a metal.  
(b) Metals are good conductor of electricity.

**Q3:** If in Fig. 4.1 iron nail is replaced by a wooden stick, will the bulb glow or not? Justify your answer.

**Answer:**

Because wood is a poor conductor of electricity, the bulb will not glow.

**Q4:** Paheli prepared a blue coloured solution of copper sulphate in beaker A and placed an iron nail in it. Boojho prepared a yellowish-green solution of ferrous sulphate in beaker B and placed a copper wire in it. What changes will they observe in the two beakers after an hour?

**Answer:**

- A reddish-brown layer of copper will form on the iron nail in beaker A, and the blue solution will turn yellowish-green.
- Beaker B, on the other hand, shows no signs of alteration.

Because Fe is more reactive than Cu, it displaces the Cu from the  $\text{CuSO}_4$  solution in beaker A. As a result of the production of  $\text{FeSO}_4$ , the solution's blue colour changes to green. Because Cu is less reactive than Fe, it cannot displace Fe from  $\text{FeSO}_4$  solution in beaker B.

**Q5:** A doctor prescribed a tablet to a patient suffering from iron deficiency. The tablet does not look like iron. Explain.

**Answer:**

The tablet is not composed of iron metal, but rather of iron salt.

Iron is taken orally in the form of ferrous sulphate, ferrous gluconate, or amino acid chelate tablets. Tablets cannot resemble iron, but they do contain iron metal in various forms to compensate for the deficiency. Iron supplements, often known as iron salts or iron pills, are a type of iron supplement that is used to treat and prevent iron deficiency, such as anaemia.

Ferrous salts (ferrous fumarate, ferrous sulphate, and ferrous gluconate) are the most readily absorbed iron supplements and are frequently used as a standard for other iron salts.

**Q6:** Match the substances in Column A with their applications given in Column B.

Column A	Column B
(Substance)	(Application)
(a) oxygen	(i) for making crackers
(b) copper	(ii) for disinfecting water
(c) sulphur	(iii) all living beings inhale during breathing
(d) iron	(iv) for making electric wires
(e) chlorine	(v) for making rails

**Answer:**

- (a) oxygen - (iii) all living beings inhale during breathing  
(b) copper - (iv) for making electric wires

- (c) sulphur - (i) for making crackers
- (d) iron - (v) for making rails
- (e) chlorine - (ii) for disinfecting water

## Long Answer Type Questions

**Q1:** Some of the following statements are incorrect. Find the incorrect statements and correct them.

- (a) The property of metals by virtue of which they can be drawn into wires is called ductility.
- (b) Metals are good conductor of electricity but poor conductor of heat.
- (c) Articles made of metals produce ringing sound when struck hard.
- (d) Oxides of non-metals and metals are acidic in nature.
- (e) A less reactive metal replaces a more reactive metal from its salt solution in water.

**Answer:**

Statements b, d, and e are not correct.

**(b) Metals are good conductor of electricity but poor conductor of heat.**

Because the atoms in metals form a matrix through which outside electrons can easily travel, metals are good conductors of both electricity and heat.

**(d) Oxides of non-metals and metals are acidic in nature.**

Metal oxides are basic because when they dissolve in water, they produce salt and water.  $\text{OH}^-$  is found in metal oxides. As a result, ions are basic in nature. Sulfur dioxide and other non-metal oxides contain  $\text{H}^+$  ions, which dissolve in water to form acidic solutions.

**(e) A less reactive metal replaces a more reactive metal from its salt solution in water.**

Metals at the top of the reactivity series are extremely reactive and have the ability to displace metals at the bottom of the series.

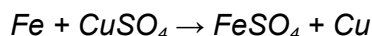
**Q2:** Iron is more reactive than copper. Can you write an activity to show this?

**Answer:**

Iron is more reactive than copper can be shown by the below activity.

- Copper sulphate solution, an iron nail, and a test tube are all required materials.
- 
- Pour copper sulphate solution into the test tube. Drop the iron nail on top of it and wait for the reaction.

- 
- Observation: The solution changes colour to blue. When the nail comes in contact with the solution, it turns a reddish-brown colour.
- 
- Conclusion- The following equation can be used to understand the preceding process:



This type of reaction is termed as displacement reaction.

**Q3:** Fill in the blanks to complete the following paragraph.

The name of the product formed in the reaction of sulphur and \_\_\_\_\_ is sulphur dioxide gas. When sulphur dioxide is dissolved in \_\_\_\_\_, sulphurous acid is formed. The sulphurous acid turns \_\_\_\_\_ litmus paper to \_\_\_\_\_. Generally oxides of \_\_\_\_\_ are acidic in nature. After completing the paragraph write two questions which you can raise on the basis of this information.

**Answer:**

The name of the product formed in the reaction of sulphur and **Oxygen** is sulphur dioxide gas. When sulphur dioxide is dissolved in **water**, sulphurous acid is formed. The sulphurous acid turns **blue** litmus paper to **red**. Generally, oxides of **non-metals** are acidic in nature.

Two questions that can be raised on the basis of this information are:

- (i) When sulphur combines with oxygen, what gas is produced?
- (ii) What is the nature of non-metal oxides?

**Q4:** Find out the names of three metals and three non-metals from the box given as Fig 4.2.

A	X	T	M	S	P	K	L	G
X	T	S	U	L	P	H	U	R
I	L	R	H	M	N	D	I	L
C	I	R	O	N	S	E	J	K
A	L	U	M	I	N	I	U	M
R	M	U	Q	T	R	S	T	U
B	N	P	C	O	P	P	E	R
O	X	Y	G	E	N	V	W	X
N	Y	Z	T	A	B	G	H	K

Fig 4.2

**Answer:**

Three of the metals are aluminium, iron, and copper

Three of the non-metals are oxygen, sulphur, and carbon.

**Q5:** Complete the crossword given in Fig 4.3 with the help of the clues.



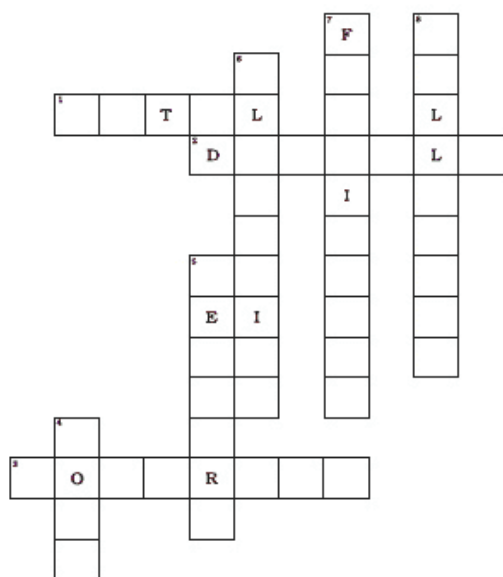


Fig 4.3

#### Across

1. Which is generally hard, ductile, malleable and sonorous.
2. A metal is called so it can be drawn into wires.
3. Metal bells are used because of this property.

#### Down

4. A metal generally used for making jewellery.
5. A metal which is liquid at room temperature.
6. A metal which reacts with acid as well as base to form hydrogen gas.
7. Substances used to enhance the growth of plants.
8. Property by virtue of which metals can be beaten into thin sheets.

#### Answer:

##### Across

1. METAL
2. DUCTILE
3. SONOROUS

##### Down

4. GOLD
5. MERCURY
6. ALUMINIUM



7. FERTILISER

8. MALLEABLE

## CBSE Class 8 Science Chapter 4 MCQ Type Questions

**Q1.** Which from the following is the most reactive metal?

- (a) calcium
- (b) potassium
- (c) silver
- (d) copper

**Answer:** (b) potassium

**Q2:** Which metal is liquid at room temperature?

- (a) bromine
- (b) calcium
- (c) mercury
- (d) sodium

**Answer:** (c) mercury

**Q3:** Name a metal from the following that is not corroded by air, water or acid,

- (a) zinc
- (b) aluminium
- (c) copper
- (d) gold

**Answer:** (d) gold