

CBSE Class 8 Science Chapter 4 Metals and Non-Metals

Objective Questions

1. Which of the following metal catch fire on reaction with air?

- A. Magnesium
- B. Manganese
- C. Potassium
- D. Calcium

Answer: (C) Potassium

Solution: Sodium and potassium both are extremely reactive and react with air as well as water vigorously. The reactions are highly exothermic and hence, the hydrogen gas evolved as byproduct catches fire.

2. When MgO is dissolved in water, $Mg(OH)_2$ is obtained. The solution thus obtained is ___ in nature.

- A. amphoteric
- B. alkaline
- C. neutral
- D. acidic

Answer: (B) alkaline

Solution: An alkaline or basic solution turns red litmus paper to blue. Hence when a red litmus paper is dipped into this solution of $\text{Mg}(\text{OH})_2$, it turns blue indicating the basic nature of the solution.

3. Which of the following metals do not react even with steam.?

- A. Silver
- B. Iron
- C. Calcium
- D. Sodium

Answer: (A) Silver

Solution: The reactivity of silver is so low that it doesn't react even with steam.

4. Identify the non-metal which exists in liquid state in room temperature 25°C .

- A. Aluminium
- B. Mercury
- C. Iodine
- D. Bromine

Answer: (D) Bromine

Solution: Amongst the given options, mercury and aluminium are metals while iodine and bromine are non-metals. Bromine is a reddish-brown liquid at room temperature.

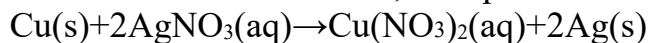
5. Which of the following pair of compounds undergo displacement reaction when they react with each other?

- A. Cu and AgNO_3 solution
- B. Ag and FeSO_4 solution
- C. Cu and NaCl solution

D. Mg and NaCl solution

Answer: (A) Cu and AgNO₃ solution

Solution: Silver nitrate and copper metal undergoes displacement reaction as copper is more reactive than silver. Hence, it displaces silver to form copper nitrate.



6. A reaction in which a more reactive metal replaces a less reactive metal from its salt solution is called a/an _____ reaction.

A. combination

B. displacement

C. double displacement

D. addition

Answer: (B) displacement

Solution: When one metal replaces another metal from its salt solution, the type of reaction is termed as a displacement reaction.

7. Food cans are coated with tin and not with zinc because:

A. Zinc is less reactive than tin.

B. Zinc is more reactive than tin.

C. Zinc has a higher melting point than tin.

D. Zinc is costlier than tin.

Answer: (B) Zinc is more reactive than tin.

Solution: Zinc is more reactive than tin. Tin only reacts with very strong acids. However, zinc can react with simple acids found in food. Hence, in order to prevent food poisoning, the food cans are coated with a cheap, less reactive metal like tin.

8. Metals, except Al and Zn, react with oxygen to form _____ oxides.

A. acidic

B. neutral

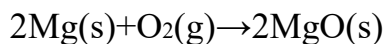
C. amphoteric

D. basic

Answer: (D) basic

Solution: Most of the metals react with oxygen to form metal oxides.

For example: magnesium reacts with oxygen to form magnesium oxide. The reaction involved is:



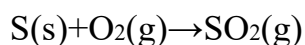
The metal oxide form alkali solution when dissolved in water. This solution turns red litmus paper to blue. Hence, these metal oxides are basic in nature.

9. When sulphur reacts with oxygen, the oxide formed is ___ in nature.

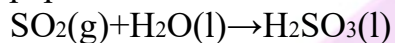
- A. alkaline
- B. neutral
- C. basic
- D. acidic

Answer: (D) acidic

Solution: The reaction of sulphur and oxygen gives sulphur dioxide gas. The reaction involved is:



When sulphur dioxide is dissolved in water, sulphurous acid is formed. It turns blue litmus paper red. The reaction involved is:



Hence, the oxide formed is acidic in nature.

10. Metals like zinc and aluminium react with sodium hydroxide to produce ___ gas.

- A. hydrogen
- B. hydrogen sulphide
- C. oxygen
- D. sulphur dioxide

Answer: (A) hydrogen

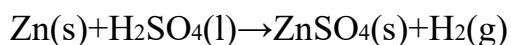
Solution: Metals react with sodium hydroxide to produce hydrogen gas. For example, sodium hydroxide reacts with zinc to produce sodium zincate and hydrogen gas. Similarly, sodium hydroxide reacts with aluminium to produce sodium aluminate and hydrogen gas.

11. When zinc reacts with dilute sulphuric acid, a salt is formed with the release of a gas. The gas produced during this puts off a burning candle with a pop sound. The gas evolved during this reaction is:

- A. sulphur dioxide
- B. oxygen
- C. hydrogen
- D. hydrogen sulphide

Answer: (C) hydrogen

Solution: Hydrogen gas is evolved mostly, when a metal reacts with an acid. When zinc reacts with dilute sulphuric acid, zinc sulphate, a salt, is formed with the release of hydrogen gas. The reaction involved is:



When a burning matchstick is brought near the testtube containing hydrogen gas, it puts off the burning matchstick and produces a pop sound.

12. The property by which metals can be beaten into sheets is known as ____

- A. ductility
- B. sonority
- C. lusture
- D. malleability

Answer: (D) malleability

Solution: Malleability is the property of metals by virtue of which they can be beaten into sheets. Gold is the most malleable metal.

13. The property of metal by which it can be drawn into wires is called ____.

- A. sonority
- B. malleability
- C. ductility
- D. lusture

Answer: (C) ductility

Solution: The property of metal by which it can be drawn into wires is called ductility. Example, copper and aluminium wires are widely used.

14. Which of the following can be beaten into thin sheets?

- A. Zinc
- B. Phosphorus
- C. Sulphur
- D. Oxygen

Answer: (A) Zinc

Solution: Zinc is a malleable metal and thus can be beaten into thin sheets. Phosphorus, sulphur and oxygen are all non-metals. Non metals are usually not malleable.

15. A substance is said to be sonorous if it _____.

- A. conducts heat
- B. conducts electricity
- C. conducts water through metal pipes
- D. produces a ringing sound when beaten

Answer: (D) produces a ringing sound when beaten

Solution: Substances that produce a ringing sound when they are beaten are said to be sonorous. Metals are generally sonorous.

16. Pick the odd one from the following elements.

- A. Gold
- B. Potassium
- C. Carbon
- D. Platinum

Answer: (C) Carbon

Solution: Out of these only Carbon (C) is a non-metal whereas the others are all metals.

17. Which of the following statement is false?

- A. Carbon is the most malleable metal.
- B. Copper is a good conductor of electricity.

C. Aluminium is a good conductor of heat.

D. Bromine is the only liquid non-metal.

Answer: (A) Carbon is the most malleable metal.

Solution: Carbon is a non-metal. Gold is the most malleable of all the metals.

18. What is the property that makes metals shine called?

A. Malleability

B. Ductility

C. Sonorous

D. Lustre

Answer: (D) Lustre

Solution: Metals have a unique ability to reflect light from their pure surface (without impurities). This results in a shiny surface and this property is known as lustre.

19. Which of the following is a non-metal but is lustrous?

A. Carbon

B. Mercury

C. Iodine

D. Fluorine

Answer: (C) Iodine

Solution: Iodine, though it is a non-metal, has a property of having a shiny surface. Therefore showing the property of lustre, like a metal.

20. Sodium metal is dipped in which of the following substances for storage?

A. vaseline

B. kerosene

C. petrol

D. sulphuric acid

Answer: (B) kerosene

Solution: Sodium metal is very reactive. It reacts vigorously with oxygen and water. A lot of heat is generated in the reaction. It is, therefore, stored in kerosene

21. Which of the following order is correct for the reactivity of metals?

A. $\text{Na} > \text{Au} > \text{Fe} > \text{Mg}$

B. $\text{Na} > \text{Mg} > \text{Fe} > \text{Au}$

C. $\text{Mg} > \text{Fe} > \text{Na} > \text{Au}$

D. $\text{Mg} > \text{Na} > \text{Fe} > \text{Au}$

Answer: (B) $\text{Na} > \text{Mg} > \text{Fe} > \text{Au}$

Solution: Sodium (Na) is the most reactive element amongst the other three because sodium reacts violently even with the cold water. Magnesium (Mg) on the otherhand reacts to a very little extent to the warm water. Red hot iron (Fe) reacts with steam at high temperature. And lastly, gold (Au) is a noble metal, it barely reacts with the steam also.