Exercise Questions **Page Number: 53-55**

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

(a) Zinc

(b) Phosphorus

(c) Sulphur

(d) Oxygen

Solution:

Answer is a) Zinc

Explanation:

Here, zinc is a metal with malleability and ductility whereas Phosphorus, Sulphur and Oxygen are nonmetals which lack malleability and ductility.

2. Which of the following statements is correct?

(a) All metals are ductile.

(b) All non-metals are ductile.

(c) Generally, metals are ductile.

(d) Some non-metals are ductile.

Solution:

Answer is (c) Generally, metals are ductile.

Explanation:

Ductility is a property where a substance can be drawn into thin wires. Generally, metals are ductile with mercury as the exception.

3. Fill in the blanks.

(a) Phosphorus is a very _____non-metal.

(b) Metals are _____ conductors of heat and _____ .

(c) Iron is _____reactive than copper.

(d) Metals react with acids to produce _____ gas.

Solution:

(a) Phosphorus is a very **reactive** non-metal.

(b) Metals are **good** conductors of heat and **electricity.**

(c) Iron is **more** reactive than copper.

(d) Metals react with acids to produce **hydrogen** gas.

4. Mark 'T' if the statement is true and 'F' if it is false.

(a) Generally, non-metals react with acids. ( )

(b) Sodium is a very reactive metal. ( )

(c) Copper displaces zinc from zinc sulphate solution. ( )

(d) Coal can be drawn into wires. ( )

Solution:

a) False

b) True

c) False

d) False

5. Some properties are listed in the following table. Distinguish between metals and non-metals on the basis of these properties.

Properties	Metals	Non-metals
1. Appearance		
2. Hardness		
3. Malleability		
4. Ductility		
5. Heat Conduction		
6. Conduction of Electricity		

Solution:

Properties	Metals	Non-metals

1. Appearance	Lustrous	Dull
2. Hardness	Hard	Soft
3. Malleability	Have property of Malleability	Do not have a property of Malleability
4. Ductility	Have property of Ductility	Do not have the property of Ductility
5. Heat Conduction	Good conductor of Heat	Bad Conductor of Heat
6. Conduction of Electricity	Good conductor of Electricity	The bad conductor of Electricity

6. Give reasons for the following.

(a) Aluminium foils are used to wrap food items.

(b) Immersion rods for heating liquids are made up of metallic substances.

(c) Copper cannot displace zinc from its salt solution.

(d) Sodium and potassium are stored in kerosene

Solution:

a) Aluminium is malleable and can be drawn into thin sheets; hence aluminium foils are used to wrap food items

b) Immersion rods for heating liquids are made up of metallic substances because metals are good conductors of heat and electricity.

c) Copper cannot displace zinc from its salt solution because zinc is more reactive than copper.

d) Sodium and Potassium are highly reactive metals which readily reacts with atmospheric oxygen to catch fire; hence sodium and potassium are stored in kerosene.

7. Can you store lemon pickle in an aluminium utensil? Explain.

Solution:

Pickle contains acids which react with aluminium metal to produce salt and hydrogen. Hence pickle is not stored in aluminium utensil.

8. Match the substances given in Column A with their uses given in Column B.

A	B
(i) Gold	**(a) Thermometers**
(ii) Iron	**(b) Electric wire**
(iii) Aluminium	**(c) Wrapping food**
(iv) Carbon	**(d) Jewellery**
(v) Copper	**(e) Machinery**
(vi) Mercury	**(f) Fuel**

Solution:

A	B
(i) Gold	(d) Jewellery
(ii) Iron	(e) Machinery
(iii) Aluminium	(c) Wrapping food
(iv) Carbon	(f) Fuel
(v) Copper	(b) Electric wire

(vi) Mercury	(a) Thermometers

9. What happens when

(a) Dilute sulphuric acid is poured on a copper plate?

(b) Iron nails are placed in a copper sulphate solution?

Write word equations of the reactions involved.

Solution:

(i) No reaction occurs when dilute sulphuric acid is poured on a copper plate. However, when concentrated sulphuric acid is poured on a copper plate, hydrogen gas evolves along with the formation of blue coloured copper sulphate crystals. The chemical reaction for the reaction between concentrated sulfuric acid and copper is:
$Cu + H_2SO_4$ (conc.) -> $CuSO_4 + H_2$

ii) Iron, being more reactive, displaces copper from copper sulphate. In this reaction, the blue colour of copper sulphate fades and there is a deposition of copper on the iron nail.

$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

10. Saloni took a piece of burning charcoal and collected the gas evolved in a test tube.

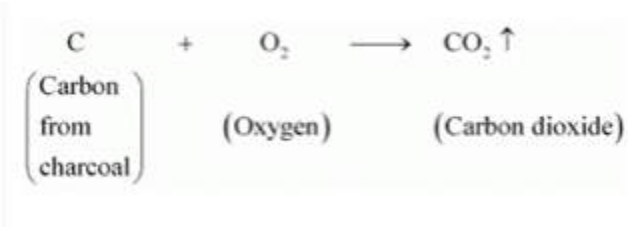
(a) How will she find the nature of the gas?

(b) Write down word equations of all the reactions taking place in this process.

Solution:

a) In a test tube containing gas, add a few drops of water. Now cover the test tube and shake well. After shaking, test the solution with blue litmus. It will change from blue to red. Thus, gas is acidic in nature.

b) Charcoal reacts with oxygen to form carbon dioxide gas.



11. One day Reeta went to a jeweller's shop with her mother. Her mother gave old gold jewellery to the goldsmith to polish. Next day when they brought the jewellery back, they found that there was a slight loss in its weight. Can you suggest a reason for the loss in weight?

Solution:

In order to polish the gold ornament, it is to be dipped into a liquid called aqua regia (a mixture of hydrochloric acid and nitric acid). On getting immersed in aqua regia, the outer layer of gold dissolves and an inner shiny layer appears. The dissolving of the layer causes a reduction in the weight of the jewellery.