Exercises

Question 1:

Which of the following can be beaten into thin sheets?

(a) Zinc (b) Phosphorus (c) Sulphur (d) Oxygen

Answer 1:

(a) Zinc

As Zinc is a metal and metal has property of malleability (Can be converted in sheet by beating). Rest of these are non-metals.

Question 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.

Answer 2:

(c) Generally, metals are ductile.

Mercury (metal) is liquid at room temperature and cannot be drawn into wires. Therefore, it is non-ductile. So the option (a) is incorrect. Not a single non-metal is ductile, so option (b) and (d) are incorrect.

Question 3:

Fill in the blanks:

(a) Phosphorus is very _____ non-metal.
(b) Metals are _____ conductors of heat and _____.
(c) Iron is _____ reactive than copper.
(d) Metals react with acids to produce _____ gas.

Answer 3:

(a) Phosphorus is 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.

Question 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. ( )

Answer 4:

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

Generally, metals react with acids and release H_2 gas.

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

Sodium, Potassium, Calcium etc., are very reactive metals.

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

The reactivity of zinc is higher than copper.
So, copper cannot displace zinc from zinc sulphate solution.

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

Coal is a non-metal, so it is non ductile.

Question 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		

Answer 5:

Properties	Metals	Non-metals
1. Appearance	Lustrous	Dull
2. Hardness	Hard	Soft
3. Malleability	Malleable	Not malleable
4. Ductility	Ductile	Not Ductile
5. Heat Conduction	Good Conductor	Bad Conductor
6. Conduction of Electricity	Good Conductor	Bad Conductor

Question 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.

Answer 6:

(a) Aluminium foils are used to wrap food items because aluminium is highly malleable. It can be beaten into thin sheets. Moreover, it does not react with food.

(b) Metals are good conductors of heat and electricity. Therefore, immersion rods for heating liquids are made of metallic substances.

(c) The reactivity of zinc is higher than copper. Only a metal of higher reactivity can displace a metal of lower reactivity from its salt solution. So, copper cannot displace zinc from zinc sulphate solution.

(d) Sodium and potassium are highly reactive metals. They can catch fire even when they come in contact with air. So, they have to be kept in kerosene.

Question 7:

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

Answer 7:

No, we cannot store lemon pickle in aluminium utensils, as metals react with acids to liberate hydrogen gas. The pickle (which is acidic in nature) can be spoiled.

Question 8:

In the following Table some substances are given in Column I. In Column II some uses are given. Match the items in column I with those in Column II.

Column I	Column II
(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

Answer 8:

Column I	Column II
(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

Question 9:

What happens when

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

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

Write word equations of the reactions involved.

Answer 9:

(a) Copper does not react with dilute sulphuric acid. When concentrated sulphuric acid is poured on a copper plate, copper reacts with sulphuric acid to liberate hydrogen gas.

$$\overbrace{Copper}^{Cu} + \overbrace{Sulphuric\ Acid}^{H_2SO_4} \longrightarrow \overbrace{Cupper\ Sulphate}^{CuSO_4} + \overbrace{Hydrogen\ Gas}^{H_2}$$

(b) The reactivity of iron is more than copper. So, iron will displace copper from copper sulphate solution. In this reaction, the blue colour of copper sulphate fades.

$$\overbrace{Iron}^{Fe} + \overbrace{Cupper\ Sulphate}^{CuSO_4} \longrightarrow \overbrace{Iron\ Sulphate}^{FeSO_4} + \overbrace{Cupper}^{Cu}$$

Question 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.

Answer 10:

(a) Add some water in the test tube in which gas is collected. Now, cover the test tube. Shake it well. Test the solution with blue litmus and red litmus. Blue litmus turns red. Thus, the nature of gas is acidic.

(b) Charcoal when reacts with oxygen forms carbon dioxide gas

$$\overbrace{Charcoal}^{C} + \overbrace{Oxygen}^{O_2} \longrightarrow \overbrace{Carbondioxide}^{CO_2}$$

Question 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?

Answer 11:

To polish a gold ornament, it is dipped in an acid (called Aqua Regia). The outer layer of gold dissolves in the acid and the inner shiny layer is visible. Because of loss of upper layer of jewellery, its weight is reduced.