ASSIGNMENT QUESTIONS SET – 2
CHAPTER – 3
METALS AND NON-METALS

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

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

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.

3. Which of the following is not a metal?

(a) copper

(b) sulphur

(c) aluminium

(d) iron

4. The substance that will be flattened on beating with a hammer is

(a) crystal of iodine

(b) lump of sulphur

(c) piece of coal

(d) zinc granule

5. Arun has learnt that non-metals on beating with a hammer are generally broken into pieces. Which of the following is a nonmetal?

(a) iron nail

(b) aluminium wire

(c) copper plate

(d) piece of coal

6. Materials which can be drawn into wires are called ductile. Which of the following is not a ductile material?

(a) silver

(b) copper

(c) sulphur

(d) aluminium

7. Metals are generally hard. Which of the following metals is an exception and can be cut with a knife?

(a) iron

(b) sodium

(c) gold

(d) magnesium

8. Metals are generally solid. Which of the following metals is in the liquid state at room temperature?

(a) mercury

(b) silver

(c) aluminium

(d) sodium

9. Metals generally react with dilute acids to produce hydrogen gas. Which one of the following metals does not react with dilute hydrochloric acid?

(a) magnesium

(b) aluminium

(c) iron

(d) copper

10. Which of the following reacts with cold water vigorously?

(a) carbon

(b) sodium

(c) magnesium

(d) sulphur

11. The metal which produces hydrogen gas on reaction with dilute hydrochloric acid as well as sodium hydroxide solution is

(a) copper

(b) iron

(c) aluminium

(d) sodium

12. Which of the following non-metals reacts and catches fire on exposure to air?

(a) phosphorus

(b) nitrogen

(c) sulphur

(d) hydrogen

13. Generally metallic oxides are basic and non-metallic oxides are acidic in nature. Solution of which of the following oxides in water will change the colour of blue litmus to red?

(a) sulphur dioxide

(b) magnesium oxide

(c) iron oxide

(d) copper oxide

14. Which of the following property is not responsible for copper to be used as electrical conduction wires?

(a) ductility

(b) colour

(c) good conductor of electricity

(d) it is solid

15. 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.

16. A substance is malleable, ductile and electropositive in nature. What type of substance is it?

17. What property of a metal makes it possible to draw it into wires?

18. Why are metals good conductors?

19. Name the metal which is commonly used for making cooking utensils

20. Fill in the blanks:

(a) _____ is liquid metal

(b) _____ is only liquid Non metals

(c) _____, _____ and _____ are soft metal

(d) _____ is the hardest natural substance

(e) _____ and _____ are have low melting points. They melt in the palm of the hand

(f) Metals can be beaten into thin sheets so they are called _____

(g) Non metals are bad conductors of electricity except _____

(h) Metals react with oxygen to form _____ oxides

(i) Some metal oxides show acidic and basic properties. They are called _____. Eg :- Aluminum oxide, Zinc oxide etc.

(j) $Al_2O_3 + 6HCl \rightarrow$ _____ $+ 3H_2O$

(k) $Al_2O_3 + NaOH \rightarrow$ _____ $+ H_2O$

(l) _____ and _____ does not react with oxygen even at high temperature.

(m) Metals like potassium and sodium react vigorously with oxygen and catch fire if kept in open. Hence they are stored in _____ to prevent burning.

(n) Magnesium reacts only with _____ water to form magnesium hydroxide and hydrogen.

(o) Metals like aluminium, iron and zinc react only with _____ to form the metal oxides and hydrogen.

(p) _____ gas is not evolved when metals react with nitric acid (HNO_3) because it is a strong oxidising agent

(q) A more reactive metal displaces a _____ reactive metal from its salt solution

(r) The arranging of metals in the decreasing order of their reactivity is called _____ series of metals.

(s) Metals lose electrons and become positive ions. So they are called _____ elements

(t) Non metals _____ electrons and become negative ions. So they are called electro negative elements

(u) _____ are compounds formed by the transfer of electrons from a metal to a non metal.

(v) If one of the metals in an alloy is mercury, it is called an _____

(w) _____ is the damage caused to metals due to the reaction of metals with oxygen, moisture, carbon dioxide etc.

(x) Some elements show properties of both metals and non metals. They are called _____

(y) _____ is a mixture of concentrated nitric acid and concentrated hydrochloric acid in the ratio 1:3.

21. Name one electrovalent compounds in each case in which ;

(i)One atom combines with one other atom

(ii)One atom combines with two other atoms

(iii)One atom combines with three other atoms

22. 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.

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

24. Write the electron dot structure for oxygen and magnesium.

25. Show the formation of Na2O and CaO by the transfer of electrons.

26. Write an activity to show that ionic compounds are good conductors of electric current in their aqueous solution.

27. Why is aluminum extracted from alumina by electrolytic reduction and not by reducing with carbon?

28. Why is ZnO called an amphoteric oxide? Give the support to your answer. Give equation for the following

(a) Iron is heated with steam.

(b) Magnesium reacts with water.

(c) iron reacts with dil.HCl

29. What would you observe when zinc is added to a solution of iron (II) sulphate? Write the chemical reaction that takes places.

30. A trivalent metal X is manufactured by the process of electrolysis, It is the most abundant metal in the earth's crust. Identify the metal and state its two uses.

31. Which gas is always produced when a metal reacts with a dilute Write chemical reaction when iron reacts with dil. H_2SO_4.

32. What is the activity series of metals? Rearrange the following metals in an increasing order of reactivity: Aluminum, Zinc, Mercury.

33. What is meant by the term 'enrichment of ore' ? name four Methods generally used for enrichment of ores.

34. You must have seen tarnished copper vessels being cleaned with lemon or tamarind juice. Explain why these sour substances are effective in cleaning the vessels.

35. Write a balanced chemical equation for the reaction of the following metals with water: (i) Ca (ii) Zn (iii) Fe

36. Define the terms:(i) Mineral (ii) Ore and (iii) Gangue

37. Explain how the following metals are obtained from their compounds by the reaction process:

(i) Metal 'X' , which is low in reactivity series.

(ii) Metal 'Y', which is middle in reactivity series.

(iii) Metal 'Z' which is high up in the reactivity series.

38. Give reasons:

(a) The surface of some metals acquires a dull appearance when exposed to air for a long time.

(b) A salt which does not conduct electricity in the solid state becomes a good conductor in molten state

39. What will happen if a :

(i) Strip of zinc is immersed in a solution of copper sulphate.

(ii) Strip of copper is kept immersed in a solution of silver nitrate

40. Explain why: (i) Conc. HNO3 can be stored in aluminium container.

(ii) Aluminium is used for making transmission wires.

(iii) 24 carat gold can not be used for making ornaments.

(iv) Aluminium is used for making cooking utensils.

(v) Metals generally do not form compounds with hydrogen.

41. An element X on reacting with O_2 forms X_2O.This Oxide dissolves in water and turns blue litmus paper red. Predict the nature of element whether it is a metal or a non metal.

42. An element E combines with O_2 to form an oxide E_2O, which is a good conductor of electricity. i) How many electrons will be present in the outer most shell of E? ii) Write the formula of the compound formed when it combines with Chlorine.

43. 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.

44. 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.

45. 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?

46. Name two soft metals which can be cut with a knife.

47. Which non-metal is essential for our life and all living beings inhale it during breathing?

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

49. Which non-metal is used to disinfect water?

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

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

52. Why are bells made of metals?

53. Which liquid metal is used for making thermometers?

54. Which of the following metals can displace the other two metals from their salt solutions?

zinc, iron, copper

55. Arun bought a statue made of copper. To her surprise it acquired a dull green coating after a couple of months. Explain the reason.

56. Find out the names of three metals and three non-metals from the box given below:

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

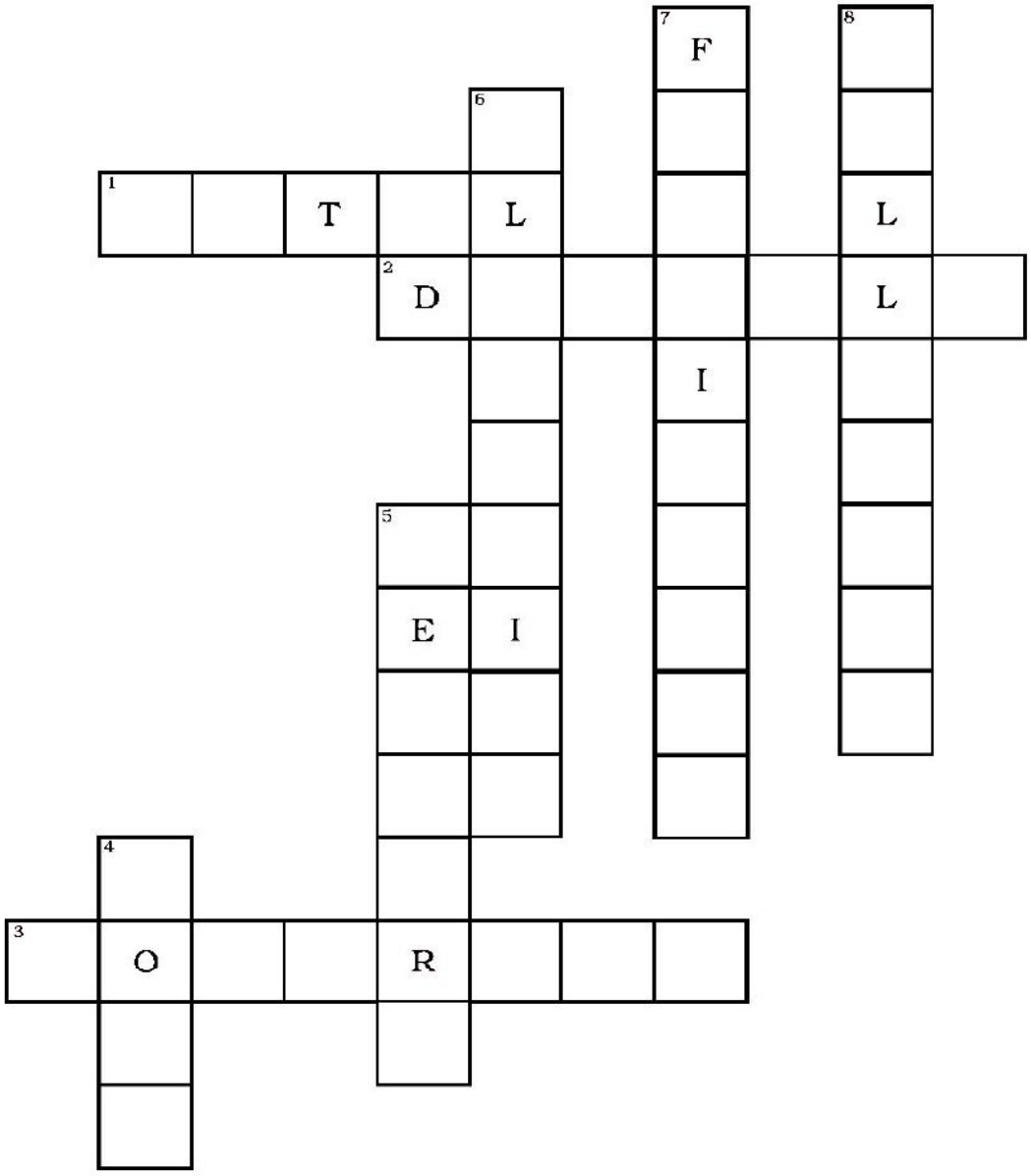
57. Fill in the blanks to complete the following paragraph.

(a) The name of the product formed in the reaction of sulphur and
(b) _____ is sulphur dioxide gas. When sulphur dioxide is
(c) dissolved in_____, sulphurous acid is formed. The
(d) sulphurous acid turns _____ litmus paper to _____.
(e) Generally oxides of _____ are acidic in nature.

After completing the paragraph write two questions which you can raise on the basis of this information.

58. Arun prepared a blue coloured solution of copper sulphate in beaker A and placed an iron nail in it. Mahesh 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?

59. Complete the crossword given in below with the help of the clues.



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.

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

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

62. In the given figure 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.

(a) _____ is a metal.
(b) Metals are good _____ of electricity.

63. If in the above figure iron nail is replaced by a wooden stick, will the bulb glow or not? Justify your answer.

64. Why is sodium kept preserved in kerosene?

65. What is the activity series of metals? Arrange the metals Zn, Mg, A;, Cu and Fe in decreasing order of reactivity.