THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

AIM HIGH, TOGETHER WE FLY

METALS AND NONMETALS

1 Which of the following metal has highest melting point?
(a)Copper (b) Silver (c) Sodium (iv) Tungsten

2 Galvanisation is a method of protecting iron from rusting by coating it with a thin layer of
(a)gallium (b)aluminium (c)zinc (iv) silver

3 What happens when calcium is treated with water?
(a)it does not react with water (b)it reacts violently with water
(c)It reacts less violently with water (d)bubbles of hydrogen gas formed stick to the surface of Ca
(i) a & d (ii)b& c (iii)a & b (iv)c & d

4 Which among the following alloys contain mercury as one of its constituents?
(a) Stainless steel
(b) Alnico
(c) Solder
(d) Zinc amalgam

5 Which of the following non-metal is good conductor of electricity?
(a) Graphite
(b) Phosphorus
(c) Hydrogen
(d) Bromine

6 Assertion - Reason Questions
The following questions consists of two statements - Assertion & Reason. Answer these questions selecting the appropriate option given below :
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) Assertion is false but the Reason is true.

(i) Assertion: Food cans are coated with tin and not with zinc.
Reason: Zinc is more reactive than tin

(ii) Assertion: Sodium and potassium are highly reactive metals.
Reason: Sodium and potassium are stored under water.

7 A metal M does not liberate hydrogen from acids but reacts with oxygen to give a black colour product. Identify M and the black coloured product and explain the reaction of M with oxygen.

8 A substance X which is an oxide of a metal is used intensively in the cement industry. This substance is present in bones also. On treatment with water it forms a solution which turns red litmus blue. Identify X and write the chemical reactions involved.

9 A solution of $CuSO_4$is kept in an iron pot. After few days the iron pot was found to have several holes in it. Explain the reason in terms of reactivity. Write the equation of the reaction involved.

10 Show the formation of $MgCl_2$ and CaO by the transfer of electrons.

11 Generally, when metals are treated with mineral acids, hydrogen gas is liberated but when metals are treated with HNO_3, hydrogen gas is not liberated. Why?

12 Compound X and Aluminum are used to join railway tracks.
(a) Identify the compound X.
(b) Name the reaction.
(c) Write down the reaction.

13 Explain the following by giving examples
(a) How metal oxides react with acids?
(b) How non- metal oxides react with base?

14 Give reasons:
(a) NaCl is not a conductor of electricity in solid state.
(b) Iron articles are galvanized.
(c) Metals like Na, K, Ca and Mg are never found in their free state in nature.

15 (a) Write the chemical name of the coating that forms on copper and silver articles when these are left exposed to moist air.
(b) Explain what galvanization is. What purpose is served by it ?

16 Give reasons:
(a) The oxides of metal like Na, Mg and Ca cannot be reduced by carbon.
(b) Aluminum containers used to transport nitric acid.
(c) Molten sodium chloride conducts electricity whereas solid NaCl will not.
(d) The galvanized iron article is protected against rusting even if the zinc layer is broken.
(e) An iron knife kept dipped in a blue copper sulphate solution colour of solution changes to light green.
(f) Articles made of Aluminum do not corrode even though aluminum is an active metal.

17 (a) Which metal from the following can displace zinc from zinc sulphate solution?
Lead, copper, magnesium, silver "
(b) Write the equation of the chemical reaction involved.
(c) Arrange metals Ca, Al, Cu and Au in decreasing order of reactivity

18 A metal X displaces metal Y from $Y_2(SO_4)_{3(aq)}$. Which metal is more reactive X or Y ?

19 Iron displaces copper from copper sulphate solution, zinc displaces iron from iron sulphate solution and copper displaces silver from silver nitrate solution. On the basis of these reactions arrange the four metals involved in order of their reactivity. Give balanced chemical equations in each case.

20 When a copper wire is left in silver nitrate solution, it is observed that the solution turns bluish green.
(a) Explain the observation.
(b) Write the balanced chemical equation to represent the change taking place.

21 Differentiate between Roasting and Calcination. Give one example.

22 A non-metal X exists in two different forms Y and Z. Y is the hardest natural substance, whereas Z is a good conductor of electricity. Identify X , Y and Z.

23 How does the term “Ore” differ from “Mineral”? Give an example.

24 A metal that exists as liquid at room temperature is obtained by heating its sulphide in the presence of air. Identify the metal and its ore and give the reaction involved.

25 Given below are the steps for extraction of copper from its ore.
"Write the reactions involved.

(a) Roasting of copper (I) sulphide.
(b) Reduction of copper (I) oxide with copper (I) sulphide.
(c) Electrolytic refining. Draw a neat labelled diagram for electrolytic refining.

26 Write chemical equations that show aluminum oxide reacts with acid as well as base.

27 What are the constituents of solder alloy? Which property of solder makes it suitable for welding electric wires?

28 With the help of suitable example, explain how ionic compounds are formed. State any three general properties of ionic compounds.