



## Metals and Non-metals

### Grade 10

#### Question Bank

#### Answer the following questions

1. Which groups in the periodic table are metals and which are non-metals?
2. Give an example of a metal which
  - (i) is a liquid at room temperature.
  - (ii) can be easily cut with a knife.
  - (iii) is the best conductor of heat.
  - (iv) is a poor conductor of heat.
3. Explain the meanings of malleable and ductile.
4. Note down four physical properties of metals.
5. What are the physical properties of non-metals?
6. Why is sodium kept immersed in kerosene oil?
7. Write equations for the reactions of
  - (i) Iron with steam
  - (ii) Calcium and potassium in water
8. Which gas is produced when dilute hydrochloric acid is added to a
9. reactive metal? Write the chemical reaction when iron reacts with dilute  $H_2SO_4$
10. What would you observe when zinc is added to a solution of iron(II) sulphate? Write the chemical reaction that takes place.
11. What are ionic compounds? How are they formed?
12. What are some of the common properties of ionic compounds?
13. (i) Write the electron-dot structures for sodium, oxygen, and magnesium.
  - (ii) Show the formation of  $Na_2O$  and  $MgO$  by the transfer of electrons.
  - (iii) What are the ions present in these compounds?
14. Why do ionic compounds have high melting points?
15. Define the following terms. (i) Mineral (ii) Ore (iii) Gangue
16. Name two metals that are found in nature in the free state.
17. What chemical process is used for obtaining a metal from its oxide?
18. Metallic oxides of zinc, magnesium, and copper were heated with the following metals.

Metal	Zinc	Magnesium	Copper
Zinc Oxide			
Magnesium Oxide			
Copper Oxide			

In which cases will you find displacement reactions taking place?

19. Which metals do not corrode easily?
20. What are alloys?
21. What are amphoteric oxides? Give two examples of amphoteric oxides.
22. Name two metals that will displace hydrogen from dilute acids, and two metals that will not.
23. In the electrolytic refining of a metal M, what would you take as the anode, the cathode, and the electrolyte?
24. Pratyush took sulphur powder on a spatula and heated it. He collected the gas evolved by inverting a test tube over it, as shown in the figure below.
  - (a) What will be the action of gas on (i) dry litmus paper? (ii) moist litmus paper?
  - (b) Write a balanced chemical equation for the reaction taking place.
25. State two ways to prevent the rusting of iron.
26. What type of oxides are formed when non-metals combine with oxygen?
27. Give reasons
  - (a) Platinum, gold and silver are used to make jewellery.
  - (b) Sodium, potassium and lithium are stored under oil.
  - (c) Aluminium is a highly reactive metal, yet it is used to make utensils for cooking.
  - (d) Carbonate and sulphide ores are usually converted into oxides during the process of extraction.
28. Differentiate between metal and non-metal on the basis of their chemical properties.
29. Give reasons why copper is used to make hot water tanks and not steel (an alloy of iron).
30. 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.