

Board – CBSE

Class – 10

Topic – Metals & Non-Metals

- List five physical properties of metals and compare them with non-metals.
- Why is gold widely used for making jewellery?
- Name one metal commonly used for making cooking utensils. Give reason also.
- Give exceptions in the following cases.
 - All metals exist as solid at room temperature.
 - Non-metals are non-lustrous.
 - Non-metals do not conduct electricity.
 - Metals are hard.
 - Solid non-metals are brittle.
- What is observed when
 - Magnesium ribbon is burnt in a flame.
 - Copper metal is heated in air.
- Name two metal oxides that are soluble in water. (Write equation also)
- With the help of equations, show that Al_2O_3 is an amphoteric oxide.
- Write equations for the reactions of an acid with:
 - Zn metal.
 - Na_2CO_3
 - $NaHCO_3$
 - NaOH solution.
- Why is there no evolution of hydrogen when nitric oxide reacts with metals?
- What is the reactivity series of metals?
- What is an electrovalent bond? Show the formation of NaCl, Na₂O, MgO and MgCl₂ with the help of electron dot representation.
- Why does a solution of sodium chloride conduct electricity which solid NaCl does not?
- Write properties of ionic compounds.
- Differentiate between a mineral and an ore.
- Give reasons:
 - Gold and silver are found in their free state.
 - Sodium is never found in its free state.
 - The sulphide ore is converted into an oxide for the extraction of metals.
 - The oxides of metals like Hg can be reduced by heating only.
 - The oxides of metals like Na, Mg, Ca cannot be reduced by carbon.
- Name two metals that can be refined by electrolysis.
- Name the cathode, anode and the electrolyte for refining of copper electrolytically.

18. Name the substance formed on the surface of iron, silver and copper due to corrosion.
19. How is steel different from stainless steel?
20. What is an alloy? Write the composition of brass, bronze and solder.
21. Write the chemical equations for reactions taking place when
 - (i) Manganese dioxide is heated with aluminum.
 - (ii) Steam is passed over red hot iron.
22. Define the term alloy. Write two advantages of making alloy.
23. Show the formation of NaCl from sodium and chlorine atoms by the transfer of electrons.
24. Name the anode and cathode used in electrolytic refining of copper.
25. Name two metals which react violently with cold water. Write any three observations which would you make when such metal is dropped in cold water. How would you identify the gas evolved, if any, during the reaction?
26. Name a metal in each case;
 - (i) It does not react with cold as well as hot water but reacts with steam.
 - (ii) It does not react with any physical state of water
27. When calcium metal is added to water, the gas evolved does not catch fire but the same gas evolved on adding sodium metal to water catches fire. Why is it so?
28. Give reasons for the following
 - (i) To make hot water tanks, copper is used and not steel.
 - (ii) Lemon is used for restoring the shine of tarnished copper decorations
 - (iii) Addition of some silver to pure gold for making ornaments.
29. In what forms are metals found in nature? With the help of examples, explain how metals react with oxygen and dilute acids. Also write chemical equation for the reactions.
30. Explain how the following metals are obtained from their compounds by reduction process:
 - (i) Metal X which is low in reactivity series.
 - (ii) Metal Y which is in the middle of series.
 - (iii) Metal Z which is high in reactivity series.
31. With a labeled diagram describe an activity to show that metals are good conductor of electricity.
32. Account for the following
 - (i) Hydrogen gas is not evolved when a metal reacts with nitric acid.
 - (ii) The reaction of iron (III) oxide with aluminium is used to join cracked iron parts of machines.
33. Which of the following will form acidic oxide?

P, K, Na, Ca

34. Name the constituents of the following alloys

(i) Brass (ii) Stainless steel (iii) Bronze