

- 1. Which metal is the poorest conductor of heat and which one is the best conductor of heat ?
- 2. Name two metals other than silver and gold which are not attacked even by steam.
- 3. The atom of an element X has the electronic arrangement 2, 8, 14, 2. Without identifying the element, state the valency of the element and write whether it is likely to have oxidizing or reducing properties.
- 4. Which of the following elements is a metal ?
 - (i) ${}^{23}_{11}X$ (ii) ${}^{19}_{9}Y$ (iii) ${}^{20}_{10}Z$
- 5. Give the reactions, if any, of the following metals with a solution of copper sulphate :

(a) Platinum (b) Gold (c) Zinc

- 6. Metal A can displace metal B from BO, the oxide of metal B. Metal B can displace C from solution of CSO₄, the sulphate of metal C. Arrange metals A, B and C in the order of increasing reactivity.
- 7. 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 good conductor of heat (iv) is the poor conductor of heat.
- 8. Explain the meaning of malleable and ductile.
- 9. Why is sodium kept immersed in kerosene oil ?
- 10. Which gas is produced when dilute hydrochloric acid is added to a reactive metal ? Write the chemical reaction when iron reacts with dilute H_2SO_4 .
- 11. An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be
 - (a) Calcium (b) Carbon (c) Silicon (d) Iron
- 12. You are given a hammer, a battery, a bulb, wires and a switch. How would you use them to distinguish between samples of metals and non-metals.
- 13. What are amphoteric oxides ? Give examples of two amphoteric oxides.
- 14. Name two metals which will displace hydrogen from dilute acids, and two metals which will not.
- 15. 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 figure.





Collection of gas

- (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.
- 16. Differentiate between metals and non-metals on the basis of their chemical properties.
- 17. Metallic oxides of zinc, magnesium and copper were heated with the following metals. In which cases, will you find displacement reactions taking place ?

Metal oxide	Zinc	Magnesium	Copper
Zinc oxide			
Magnesium oxide			
Copper oxide			

- 18. The number of protons in a sodium atom is 11 and that in a chlorine atom is 17. What is the number of electrons :
 - (a) in a sodium cation, Na⁺?
 - (b) in a chloride anion, CI^- ?
- 19. Write the electron-dot structures for sodium and oxygen.
- 20. Write the electron-dot structures for magnesium and chlorine.
- 21. What are the ions present in the compound Na₂O?
- 22. What are the cations and anions present in the compound MgCl₂?
- 23. What name is given to the compounds formed by the transfer of electrons from a metal to a non-metal ?
- 24. In the formation of a compound XY, atom X gives one electron to each atom Y. What is the nature of bond in XY ?
- 25. Why do ionic compounds have high melting points ?
- 26. What can you say about the electronic configuration of noble gases ? How does it help in explaining the reactivity of elements ?
- 27. State any four general properties of ionic compounds.

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- 28. An element A has two electrons in the outermost shell of its atom and combines with an element B having seven electrons in the outermost shell, forming the compound AB₂. The compound when dissolved in water conducts electric current. Giving reason, state the nature of chemical bond in the compound.
- 29. Why do atoms combine ?
- 30. Why is sodium chloride soluble in water but not in kerosene or petrol?
- 31. Explain why solid sodium chloride does not conduct electricity but in the molten state or in the aqueous solution, it is a good conductor of electricity. Explain.
- 32. (i) Write electron dot structures for sodium, oxygen and magnesium.

(ii) Show the formation of Na₂O and MgO by transfer of electrons.

(iii) What are the ions present in these compounds ?

- 33. Name two metals which are found in nature in the free state.
- 34. Name any two sulphide ores.
- 5. Name any two oxide ores.
- 36. Name one ore each of zinc and mercury and give their chemical formulae.
- 37. Name any two ores which are concentrated by electromagnetic separation.
- 38. What do you understand by 'thermite reaction' ?
- 39. Why aluminium cannot be obtained by reduction of its oxide with coke ?
- 40. For the reduction of metal oxide to metal, suggest a reducing agent cheaper than aluminium.
- 41. What is 'anode mud' in the electrolytic refining of metals ?
- 42. Write the name and formula of the main ore of aluminium.
- 43. A man went door to door posing to be a goldsmith. He promised to bring back the glitter of old and dull gold ornaments. An unsuspecting lady gave a set of gold bangles to him which he dipped in a particular solution. The bangles sparkled like new but their weight was reduced drastically. The lady was upset but after a futile argument the man beat a hasty retreat. Can you play the detective to find out the nature of the solution he had used ?
- 44. Differentiate between roasting and calcination process used in metallurgy. Give an example of each.
- 45. Explain why carbon can reduce copper oxide to copper but not calcium oxide to calcium.
- 46. An ore on treatment with dilute hydrochloric acid reacts with brisk effervescence to produce a colourless, odourless gas. What type of ore is this ? What operations will be required to obtain metal from it ?
- 47. An ore on treatment with dilute hydrochloric acid gives a smell like that of rotten eggs. What type of ore is this ? How can it be concentrated ? How can the metal be obtained from the concentrated ore?
- 48. An ore on heating in air gives sulphur dioxide (SO₂) gas. What method in each metallurgical operation will be required to extract the metal from the ore ?



- 49. Define the terms (a) Minerals (b) Ore (c) Gangue.
- 50. A metal M is found in nature as its carbonate, MCO₃. It is used in galvanization of iron articles. Identify the metal M and name its ore, MCO₃. How will you convert this carbonate ore into free metal ? Explain with equations.
- 51. (i) Write the chief ore of iron. Write its formula.

(ii) What do you mean by concentration of ore ? What is gangue ?

(iii) Draw labeled diagram for electrolytic refining of copper metal.

- 52. Which metals do not corrode ?
- 53 What are alloys ?
- 54. Give reasons why copper is used to make hot water tanks but steel (an alloy of iron) is not.
- 55. Name the metals which are usually alloyed with gold to make it harder.
- 56. Name a metal which is used for galvanizing iron ?
- 57. Name a common metal which is highly resistant to corrosion.
- 58. Why is tungsten used almost exclusively for filament of electric lamps ?
- 59. Why are copper and aluminium wires usually used for electricity transmission ?
- 60. Name an alloy of a metal with a non-metal. Can we get alloys between (i) a metal and another metal. (ii) a non-metal and another non-metal ?
- 61. What are ferrous alloys ? Give two examples.
- 62. What is galvanization ? How does this process prevent rusting ?
- 63. Which two metals do not corrode easily ? Give an example in each case to support that :
 - (i) corrosion of some metals is an advantage
 - (ii) corrosion of a metal is a serious problem.
- 64. What is an alloy ? Name the alloy which has copper, nickel and zinc as its constituents. What is the chief use of this alloy ?
- 65. (i) Explain what corrosion of iron means.

(ii) Why is it that aluminium which is more reactive than iron does not corrode like iron.

(iii) How is corrosion of iron prevented by coating it with a layer of oil ?

- 66. 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.
- 67. (i) What do you mean by corrosion of metals?

(ii) Write an activity to show that moisture and air (oxygen of air) is needed for corrosion (rusting) of iron metal.

- 68. What is an alloy ? How is an alloy made ? List two purposes of making alloys. Mention the constituents and two properties of each of the following alloys :
 - (i) Stainless steel (ii) Brass