

CHAPTER

Metal and Non - Metals

4.1 ELEMENTS

Till now, out of 118 elements known, only the first 98 elements occur naturally on the earth.

Elements are divided into metals, i.e., Fe, Cu, Hg, Pb, etc., and nonmetals, i.e., C, O, H, N, etc.

Elements showing properties of both metals and nonmetals like boron, silicon, germanium, arsenic, antimony and tellurium are called metalloids.

4.1.1 Metals

Three-quarters of elements are metals. Coinage metals Au, Ag and Pt are used to make coins, etc.

1. Strategic metals titanium, chromium, manganese, zirconium, etc., are used for country's economy and defence. Co, Cu, Fe, Mg, K, Na and Zn are essential to human, plant and animal health.
2. Metals are solid at room temp. except mercury, i.e., liquid at room temp. They have metallic lustre. They are hard and cannot be easily cut with a sharp knife but metals Na and K are so soft that they can be easily cut with a knife. Chromium is the hardest and caesium the softest metal.
3. Metals like Au, Ag, Cu, Sn, Al, etc., are malleable, i.e., can be beaten with a hammer into thin sheets. They are ductile, i.e., drawn into fine wires. Gold is the most ductile and malleable metal.
4. Metals are good conductors of heat and electricity. Silver is the best conductor of heat and electricity. Lead is a poor conductor of heat and electricity.
5. Metals are crystalline in nature and densely

packed, i.e., have high density. However, lithium (Li), sodium (Na) and potassium (K) have densities lesser than water.

6. Metals have high MP and BP because their constituent atoms are closely packed and strong forces of attraction exist between them. Gallium and caesium will melt if kept on the palm of our hand due to having low MP. Metals are sonorous, i.e., give a ringing sound when struck.

4.1.2 Nonmetals

All living organisms are composed of nonmetals, i.e., carbon, hydrogen, oxygen and nitrogen. Oxygen, the survival of living organisms, is the most abundant non-metal in the earth's crust.

1. Out of 22 nonmetals, 10 are solids, 11 are gases and 1 (Br) is a liquid. Solid nonmetals are brittle, i.e., when hammered, e.g., S and P. Nonmetals are non-malleable and non-ductile.
2. Nonmetals are bad conductors of heat and electricity except graphite. They have low density, and low MP and BP except diamond (3873 K) and graphite (3773 K) which have high MP.

4.1.3 Chemical Properties of Metals

The metals when listed according to their electron-releasing tendency, the list is called activity series or reactivity series. It is shown in decreasing order as follows:

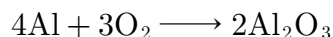
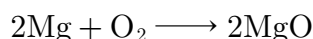
$K > Na > Ca > Mg > Al > Zn > Fe > CO > Ni > Sn > Pb > [H]^* > Cu > Hg > Ag > Au$

1. Metals combine with O_2 to give their oxides, e.g., metals like Na quickly burns with bright golden yellow flame, Mg burns with dazzling

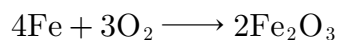
To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

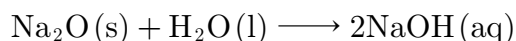
white light to give magnesium oxide (MgO) and Al burns in O₂ to form aluminium oxide (Al₂O₃).



2. Iron slowly rusts in moist air to form a reddish-brown powder called rust [Fe₂O₃ · xH₂O].



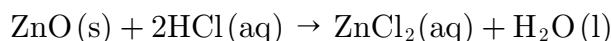
3. Silver and gold do not react with oxygen even at high temperature.
4. Metals form basic oxides which react with H₂O to form basic solution, e.g.,



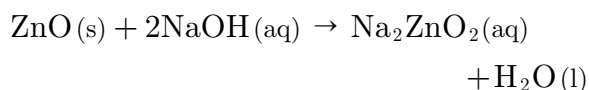
5. Oxides of metals, insoluble in water, react with acids to form salt and water.



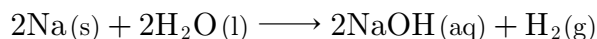
6. Amphoteric oxides ZnO, Al₂O₃ and PbO₂ react with acid and base to form salt and water, e.g.,



or



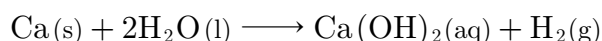
A metal placed above hydrogen is more reactive than a metal placed below hydrogen. Sodium violently reacts with water, i.e.,



Lithium, potassium and calcium react with cold water.

1. Ca reacts with H₂O violently. The heat evolved is insufficient for hydrogen to catch fire.

Ca, heavier than H₂O, however, floats on water because bubbles of H₂ gas evolved during the reaction stick to the surface of Ca and make it float. Less reactive metals like Mg displace H₂ from boiling water.

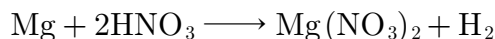
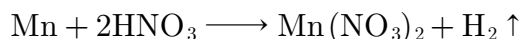


Fe, Al and Zn react on passing steam over hot metal. Pb, Cu, Ag and Au do not react with H₂O.

4.1.4 Reaction of Metals with Acids

Active metals react with dil. acids to evolve H₂ and form salt.

1. Metals placed above hydrogen in the activity series displace hydrogen from dil. hydrochloric acid or dil. sulphuric acid to evolve hydrogen gas and form the corresponding salt. Metals like Cu, Ag, Au placed below hydrogen in activity series do not evolve H₂ from dil. acids.
2. H₂ gas is not evolved when a metal reacts with HNO₃. Mg and Mn react with dil. HNO₃ to evolve H₂ gas, e.g.,



3. The combining atom of metal loses one or more of its valence electrons to change into positive ion (cation) and atom of the nonmetal gains these electrons to convert into negative ion (anion). Due to transfer of electrons between atoms of compounds, they are ionic compounds.

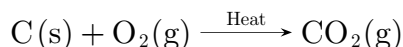
4.1.5 Physical Properties of Ionic Compounds

Ionic compounds (solids) have high MP and BP. They are soluble in the water but are insoluble in solvents kerosene, benzene, etc. They do not conduct electricity in solid state due to the presence of ions.

4.1.6 Chemical Properties of Nonmetals

Nonmetals containing 4 or more than 4 electrons in their valence shell gain electrons to acquire its octet to form negative ions, thus, called electronegative elements.

1. Nonmetals, on heating in air, form their respective oxides, e.g.,

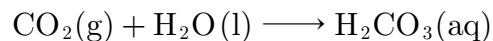


2. Oxides of nonmetals, being acidic in character,

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

dissolve in water to form acids, i.e.,



3. Nonmetals act as oxidising agents because they gain electrons and get reduced, e.g., fluorine (strongest oxidising agent). They also form covalent compounds.

□□□□□□□

Don't Take Printout of This File because this is not useful. You can purchase hard book from Amazon. Hard book includes explanation of all MCQs in print form.

MULTIPLE CHOICE QUESTIONS

1. Which of the following property is generally not shown by metals?
- Electrical conduction
 - Sonorous in nature
 - Dullness
 - Ductility

Sol : www.cbse.site/sc/cm101

2. The ability of metals to be drawn into thin wire is known as
- Ductility
 - Malleability
 - Sonority
 - Conductivity

Sol : www.cbse.site/sc/cm102

Don't Take Printout of This File because this is not useful. You can purchase hard book from Amazon. Hard book includes explanation of all MCQs in print form.

3. Aluminium is used for making cooking utensils. Which of the following properties of aluminium are responsible for the same?
- Good thermal conductivity
 - Good electrical conductivity
 - Ductility
 - High melting point
- 1 and 2
 - 1 and 3
 - 2 and 3
 - 1 and 4

Sol : www.cbse.site/sc/cm103

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

4. Which one of the following metals do not react with cold as well as hot water?

- (a) Na
- (b) Ca
- (c) Mg
- (d) Fe

Sol : www.cbse.site/sc/cm104

5. Which of the following oxide(s) of iron would be obtained on prolonged reaction of iron with steam?

- (a) FeO
- (b) Fe₂O₃
- (c) Fe₃O₄
- (d) Fe₂O₃ and Fe₃O₄

Sol : www.cbse.site/sc/cm105

6. What happens when calcium is treated with water?

1. It does not react with water.
 2. It reacts violently with water.
 3. It reacts less violently with water.
 4. Bubbles of hydrogen gas formed stick to the surface of calcium.
- (a) 1 and 4
 - (b) 2 and 3
 - (c) 1 and 2
 - (d) 3 and 4

Sol : www.cbse.site/sc/cm106

7. Generally metals react with acids to give salt and hydrogen gas.

Which of the following acids does not give hydrogen gas on reacting with metals (except Mn and Mg)?

- (a) H₂SO₄
- (b) HCl
- (c) HNO₃
- (d) All of these

Sol : www.cbse.site/sc/cm107

8. The composition of aqua regia is

- (a) Dil.HCl : Conc.HNO₃
3 : 1
- (b) Conc.HCl : Dil.HNO₃
3 : 1
- (c) Conc.HCl : Conc.HNO₃
3 : 1
- (d) Dil.HCl : Dil.HNO₃
3 : 1

Sol : www.cbse.site/sc/cm108

9. Which of the following are not ionic compounds?

1. KCl
 2. HCl
 3. CCl₄
 4. NaCl
- (a) 1 and 2
 - (b) 2 and 3
 - (c) 3 and 4
 - (d) 1 and 3

Sol : www.cbse.site/sc/cm109

10. Which one of the following properties is not general exhibited by ionic compounds?

- (a) Solubility in water
- (b) Electrical conductivity in solid state
- (c) High melting and boiling points
- (d) Electrical conductivity in molten state

Sol : www.cbse.site/sc/cm110

11. Which of the following metals exist in their native state in nature?

1. Cu

2. Au
3. Zn
4. Ag
- (a) 1 and 2
- (b) 2 and 3
- (c) 2 and 4
- (d) 3 and 4

Sol : www.cbse.site/sc/cm111

12. Silver articles become black on prolonged exposure to air. This is due to the formation of
- (a) Ag_3N
 - (b) Ag_2O
 - (c) Ag_2S
 - (d) Ag_2S and Ag_3N

Sol : www.cbse.site/sc/cm112

13. Stainless steel is very useful material for out life. In stainless steel, iron is mixed with
- (a) Ni and Cr
 - (b) Cu and Cr
 - (c) Ni and Cu
 - (d) Cu and Au

Sol : www.cbse.site/sc/cm113

14. If copper is kept open in air, it slowly loses its shining brown surface and gains a green coating. It is due to the formation of
- (a) CuSO_4
 - (b) CuCO_3
 - (c) $\text{Cu}(\text{NO}_3)_2$
 - (d) CuO

Sol : www.cbse.site/sc/cm114

15. Generally, metals are solid in nature. Which one of the following metals is found

in liquid state at room temperature?

- (a) Na
- (b) Fe
- (c) Cr
- (d) Hg

Sol : www.cbse.site/sc/cm115

16. Which of the following metals are obtained by electrolysis of their chlorides in molten state?
1. Na
 2. Ca
 3. Fe
 4. Cu
 - (a) 1 and 4
 - (b) 3 and 4
 - (c) 1 and 3
 - (d) 1 and 2

Sol : www.cbse.site/sc/cm116

17. Generally, non-metals are not lustrous. Which of the following non-metals is lustrous?
- (a) Sulphur
 - (b) Oxygen
 - (c) Nitrogen
 - (d) Iodine

Sol : www.cbse.site/sc/cm117

Don't Take Printout of This File because this is not useful. You can purchase hard book from Amazon. Hard book includes explanation of all MCQs in print form.

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

18. Which one of the following four metals would be displaced from the solution of its salts by other three metals?

- (a) Mg
- (b) Ag
- (c) Zn
- (d) Cu

Sol : www.cbse.site/sc/cm118

19. 2 mL each of concentrated HCl, HNO₃ and a mixture of concentrated HCl and concentrated HNO₃ in the ratio of 3 : 1 were taken in test tubes labelled as *A*, *B* and *C*. A small piece of metal was put in each test tube. No change occurred in test tubes *A* and *B* but the metal got dissolved in test tube *C* respectively. The metal could be

- (a) Al
- (b) Au
- (c) Cu
- (d) Pt

Sol : www.cbse.site/sc/cm119

20. An alloy is

- (a) an element
- (b) a compound
- (c) a homogeneous mixture
- (d) a heterogeneous mixture.

Sol : www.cbse.site/sc/cm120

21. An element *A* is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in air. It reacts vigorously with water. Identify the element from the following :

- (a) Mg
- (b) Na
- (c) P

(d) Ca

Sol : www.cbse.site/sc/cm121

22. Alloys are homogeneous mixtures of a metal with a metal or non-metal.

Which among the following alloys contain non-metal as one of its constituents?

- (a) Brass
- (b) Bronze
- (c) Amalgam
- (d) Steel

Sol : www.cbse.site/sc/cm122

23. Which among the following statements is incorrect for magnesium metal?

- (a) It burns in oxygen with a dazzling white flame.
- (b) It reacts with cold water to form magnesium oxide and evolves hydrogen gas.
- (c) It reacts with hot water to form magnesium hydroxide and evolves hydrogen gas.
- (d) It reacts with steam to form magnesium hydroxide and evolves hydrogen gas.

Sol : www.cbse.site/sc/cm123

24. Which among the following alloys contain mercury as one of its constituents?

- (a) Stainless steel
- (b) Alnico
- (c) Solder
- (d) Zinc amalgam

Sol : www.cbse.site/sc/cm124

25. Reaction between *X* and *Y*, forms compound *Z*. *X* loses electron and *Y* gains electron. Which of the following properties

is not shown by Z ?

- (a) Has high melting point
- (b) Has low melting point
- (c) Conducts electricity in molten state
- (d) Occurs as solid

Sol : www.cbse.site/sc/cm125

- 26.** The electronic configurations of three elements X , Y and Z are X - 2, 8; Y - 2, 8, 7 and Z - 2, 8, 2. which of the following is correct?

- (a) X is a metal.
- (b) Y is a metal.
- (c) Z is a non-metal.
- (d) Y is a non-metal and Z is a metal.

Sol : www.cbse.site/sc/cm126

- 27.** Although metals form basic oxides, which of the following metals form an amphoteric oxide?

- (a) Na
- (b) Ca
- (c) Al
- (d) Cu

Sol : www.cbse.site/sc/cm127

- 28.** Generally non-metals are not conductors of electricity. Which of the following is a good conductor of electricity?

- (a) Diamond
- (b) Graphite
- (c) Sulphur
- (d) Fullerene

Sol : www.cbse.site/sc/cm128

- 29.** Electrical wires have a coating of an insulating material. The material, generally

used is

- (a) Sulphur
- (b) Graphite
- (c) PVC
- (d) all can be used.

Sol : www.cbse.site/sc/cm129

- 30.** Which of the following non-metals is a liquid?

- (a) Carbon
- (b) Bromine
- (c) Phosphorus
- (d) Sulphur

Sol : www.cbse.site/sc/cm130

- 31.** Which of the following can undergo a chemical reaction?

- (a) $MgSO_4 + Fe$
- (b) $ZnSO_4 + Fe$
- (c) $MgSO_4 + Pb$
- (d) $CuSO_4 + Fe$

Sol : www.cbse.site/sc/cm131

- 32.** Substance that can be beaten into thin are called

- (a) Malleable
- (b) Ductile
- (c) Liquid
- (d) None of these

Sol : www.cbse.site/sc/cm132

- 33.** Sodium kept immersed in kerosene oil because-

- (a) Sodium is most reactive metal.
- (b) Sodium is less reactive metal.
- (c) Sodium is not a reactive metal.
- (d) None of these.

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

Sol : www.cbse.site/sc/cm133

34. $2\text{Fe(s)} + 2\text{H}_2\text{O(l)} \longrightarrow \text{X} + 4\text{H}_2\text{(g)}$. Here X is.
- Fe_2O_3
 - Fe_3O_4
 - FeO_2
 - Fe_2O_2

Sol : www.cbse.site/sc/cm134

35. When dilute hydrochloric acid is added to a reactive metal gas is evolved.
- Hydrogen
 - Argon
 - Helium
 - Nitrogen

Sol : www.cbse.site/sc/cm135

36. When zinc is added to a solution of iron (II) sulphate than it would displace from the solution
- Zinc
 - Sodium
 - Iron
 - None of these

Sol : www.cbse.site/sc/cm136

37. The electron dot structure for sodium is
- $\text{Na}\cdot$
 - $\text{Na}:$
 - $\overset{\cdot\cdot}{\text{Na}}\cdot$
 - $:\overset{\cdot\cdot}{\text{Na}}:$

Sol : www.cbse.site/sc/cm137

38. Ionic compound have high melting point due to
- Strong force of attraction between oppositely charged ions.
 - Less force of attraction between oppositely charged ions.
 - Strong force of attraction between similar charged ions.
 - None of these

Sol : www.cbse.site/sc/cm138

39. Which of the following pairs will give displacement reaction?
- NaCl solution and copper metal
 - MgCl_2 solution and aluminium metal
 - FeSO_4 solution and silver metal
 - AgNO_3 solution and copper metal.

Sol : www.cbse.site/sc/cm139

40. 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
- calcium
 - carbon
 - silicon
 - iron

Sol : www.cbse.site/sc/cm140

41. Food cans are coated with tin and not with zinc because
- Zinc is costlier than tin.
 - Zinc has higher melting point than tin.
 - Zinc is more reactive than tin.
 - Zinc is less reactive than tin.

Sol : www.cbse.site/sc/cm141

42. Which of the following is amphoteric oxides?

- (a) Al_2O_3
- (b) SO_2
- (c) ZnO_2
- (d) AlO_2

Sol : www.cbse.site/sc/cm142

43. Which of the following metal displace hydrogen from dilute acid?

- (a) Zinc
- (b) Magnesium
- (c) Copper
- (d) Sodium

Sol : www.cbse.site/sc/cm143

44. 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. Here X , Y and Z are

	X	Y	Z
(a)	Carbon	Diamond	Graphite
(b)	Graphite	Diamond	Carbon
(c)	Carbon	Graphite	Diamond
(d)	Diamond	Graphite	Carbon

Sol : www.cbse.site/sc/cm144

45. An element forms an oxide, A_2O_3 which is acidic in nature. Here A is

- (a) metal
- (b) non-metal
- (c) cannot be identified
- (d) mixture of metal and non metal

Sol : www.cbse.site/sc/cm145

46. Which of the following elements makes iron

hard and strong?

- (a) carbon
- (b) oxygen
- (c) water
- (d) magnesium

Sol : www.cbse.site/sc/cm146

47. The percentage of Au in 18 carat gold?

- (a) 25%
- (b) 75%
- (c) 30%
- (d) 20%

Sol : www.cbse.site/sc/cm147

48. When a metal X is treated with cold water, it gives a base Y with molecular formula XOH (Molecular mass = 40) and liberates a gas Z which easily catches fire. Here X , Y and Z are

	X	Y	Z
(a)	Na	NaOH	H_2
(b)	H_2	NaOH	Na
(c)	H_2	Na	NaOH
(d)	NaOH	Na	H_2

Sol : www.cbse.site/sc/cm148

49. Which of the following metals on reacting with sodium hydroxide solution produce hydrogen gas?

1. Cu
 2. Al
 3. Fe
 4. Zn
- (a) 2 and 3
 - (b) 2 and 4
 - (c) 1 and 4
 - (d) 2 only

Sol : www.cbse.site/sc/cm149

50. Match the items and select the correct alternative:

1.	Sodium	A	On burning produces an acidic gas.
2.	Phosphorus	B	Reacts neither with acids nor bases.
3.	Copper	C	It is so soft that it can be cut with a knife.
4.	Charcoal	D	Burns spontaneously on exposure to air.
		E	Acquires a dull green coating on exposure to air.

- (a) 1- (C), 2- (E), 3- (B), 4- (A)
 (b) 1- (D), 2- (A), 3- (C), 4- (B)
 (c) 1- (D), 2- (E), 3- (C), 4- (B)
 (d) 1- (C), 2- (D), 3- (E), 4- (A)

Sol : www.cbse.site/sc/cm150

51. Two elements X and Y on burning in air give corresponding oxides. Oxides of both X and Y are soluble in water. The aqueous solution of oxide of X is alkaline and reacts with aqueous solution of oxide of Y to give another compound. Identify X and Y
- (a) X and Y both are metals
 (b) X and Y are non-metals
 (c) X is metal and Y is non-metal
 (d) X is non-metal and Y is metal

Sol : www.cbse.site/sc/cm151

52. A highly reactive element X is stored under water. It readily reacts with oxygen of air to give a compound Y which dissolves in water. The aqueous solution of Y changes

blue litmus solution to red. The element X

- (a) Sodium
 (b) Sulphur
 (c) Phosphorous
 (d) Potassium

Sol : www.cbse.site/sc/cm152

53. Match the items in column I with the items in column II.

	Column I		Column II
1.	Iron	A	Liquid at room temperature
2.	Copper	B	Deposition of reddish-brown layer on exposure to moist air.
3.	Potassium	C	Can be cut easily with a knife.
4.	Mercury	D	Formation of a greenish layer on exposure to moist air.

Select the correct alternative.

- (a) 1- A, 2- C, 3- D, 4- B
 (b) 1- B, 2- D, 3- C, 4- A
 (c) 1- C, 2- A, 3- B, 4- D
 (d) 1- D, 2- B, 3- A, 4- C

Sol : www.cbse.site/sc/cm153

54. An element X (atomic number 12) reacts with another element Y (atomic number 17) to form a compound Z . Which of the following statements are true regarding this compound?
- Molecular formula of Z is XY_2 .
 - It is soluble in water.
 - X and Y are joined by sharing of electrons.
 - It would conduct electricity in the molten state.
- (a) 2 and 3

- (b) 1 and 3
 (c) 1, 3 and 4
 (d) 1 and 4

Sol : www.cbse.site/sc/cm154

55. A metal occurs in nature as its ore X which on heating in air converts to Y . Y reacts with unreacted X to give the metal. The metal is :

- (a) Hg
 (b) Cu
 (c) Zn
 (d) Fe

Sol : www.cbse.site/sc/cm155

56. An element X has electronic configuration 2, 8, 1 and another element Y has electronic configuration 2, 8, 7. They form a compound Z . The property that is not exhibited by Z is

- (a) It has high melting point.
 (b) It is a good conductor of electricity in its pure solid state.
 (c) It breaks into pieces when beaten with hammer.
 (d) It is soluble in water

Sol : www.cbse.site/sc/cm156

57. The compound containing both ionic and covalent bonds is

- (a) AlBr_3
 (b) CaO
 (c) MgCl_2
 (d) NH_4Cl

Sol : www.cbse.site/sc/cm157

58. The metal used to recover copper from an

aqueous solution of copper sulphate is :

- (a) Na
 (b) Ag
 (c) Hg
 (d) Fe

Sol : www.cbse.site/sc/cm158

59. A metal M of moderate reactivity is present as its sulphide X . On heating in air, X converts into its oxide Y and a gas evolves. On heating Y and X together, the metal M is produced. X and Y respectively are

(a) X cuprous sulphide, Y cuprous oxide
 (b) X cuprous sulphide, Y cupric oxide
 (c) X sodium sulphide, Y sodium oxide
 (d) X calcium sulphide, Y calcium oxide

Sol : www.cbse.site/sc/cm159

60. Which of the following are correctly matched?

1.	Ductility	drawn into wire.
2.	Malleability	drawn into sheets.
3.	Good conductors	copper and mercury.
4.	Non-metals	solids or gases.

- (a) 1, 2 and 3
 (b) 1, 2 and 4
 (c) 1, 3 and 4
 (d) 2, 3 and 4

Sol : www.cbse.site/sc/cm160

61. Which of the following are correctly matched?

1.	Mercury	liquid at room temperature
2.	Iodine	non-lustrous
3.	Lithium	low melting point

4.	Graphite	good conductor
----	----------	----------------

- (a) 1, 2 and 3
 (b) 1, 2 and 4
 (c) 1, 3 and 4
 (d) 2, 3 and 4

Sol : www.cbse.site/sc/cm162

62. Which of the following statements is/are correct for metals?

- They react with oxygen to form metal oxides.
 - All metallic oxides are basic in nature.
 - Metals are reducing agents.
- (a) 1 and 2
 (b) 2 and 3
 (c) 1 and 3
 (d) 1, 2 and 3

Sol : www.cbse.site/sc/cm62

63. Which of the following metals do/does not react with cold water?

- Potassium
 - Sodium
 - Magnesium
 - Aluminium
- (a) 1 and 2
 (b) 2 and 3
 (c) 2 and 4
 (d) 3 and 4

Sol : www.cbse.site/sc/cm63

64. Which of the following statements is/are correct for aqua regia?

- It is a freshly prepared mixture of concentrated hydrochloric acid and concentrated nitric acid.
- Hydrochloric acid and nitric acid are in ratio 2:1
- It can dissolve gold.

- (a) 1 and 2
 (b) 2 and 3
 (c) 1 and 3
 (d) 1, 2 and 3

Sol : www.cbse.site/sc/cm64

65. What is/are true for ionic compounds?

- They are solids.
 - They have low melting and boiling points.
 - They are soluble in water.
 - They are good conductors of electricity.
- (a) 1, 2 and 3
 (b) 1, 2 and 4
 (c) 1, 3 and 4
 (d) 2, 3 and 4

Sol : www.cbse.site/sc/cm65

66. Which one of the following is incorrect for metal?

- In their pure state, metal have a shining surface.
 - The ability of metals to be drawn into thin wires is called malleability.
 - Metals are generally soft.
 - Some metal can be beaten into thin sheets.
- (a) 1 and 2
 (b) 2 and 3
 (c) 3 and 4
 (d) 1 and 4

Sol : www.cbse.site/sc/cm66

67. Which of the following is the most malleable metal?

- (a) Sulphur
 (b) Gold
 (c) Phosphorus
 (d) Iron

Sol : www.cbse.site/sc/cm67

Sol : www.cbse.site/sc/cm71

68. Which of the following metal have low density?

- Iridium
- Osmium
- Lithium
- None of these

Sol : www.cbse.site/sc/cm68

69. Select the odd one out-

- Tin
- Sulphur
- Hydrogen
- Carbon
- Iodine
- Oxygen

- 2
- 4
- 5
- 1

Sol : www.cbse.site/sc/cm69

70. Which of the following is the best conductor of heat?

- Silver
- Iron
- Gold
- Aluminium

Sol : www.cbse.site/sc/cm70

71. Which of the following is incorrect regarding to non-metals?

- Non-metal are generally non lustrous and dull.
- Non-metal are generally brittle.
- Non-metals are generally soft.
- Non-metal have high densities.

72. An element X (atomic number 12) reacts with another element Y (atomic number 17) to form a compound Z . Which of the following statements are true regarding this compound?

- Molecular formula of Z is XY_2 .
 - It is soluble in water.
 - X and Y are joined by sharing of electrons.
 - It would conduct electricity in the molten state.
- 2 and 3
 - 1 and 2
 - 1, 3 and 4
 - 1, 2 and 4

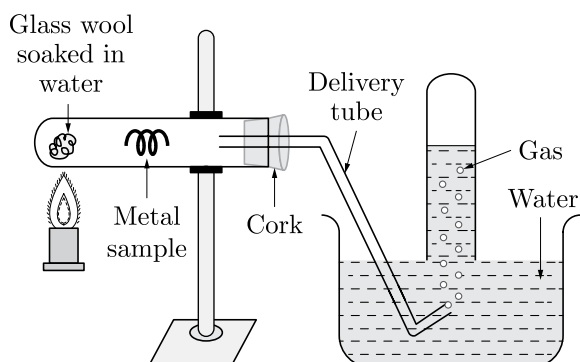
Sol : www.cbse.site/sc/cm72

73. Metals tend to have high melting points of the strength of bond.

- Metallic
- Ionic
- Compound
- None of these

Sol : www.cbse.site/sc/cm73

74. In the following practical set which of the following gas is emitted?



- (a) Hydrogen
- (b) Carbon monoxide
- (c) Carbon dioxide
- (d) Nitrogen

Sol : www.cbse.site/sc/cm74

75. Which of the following is the most reactive metal?

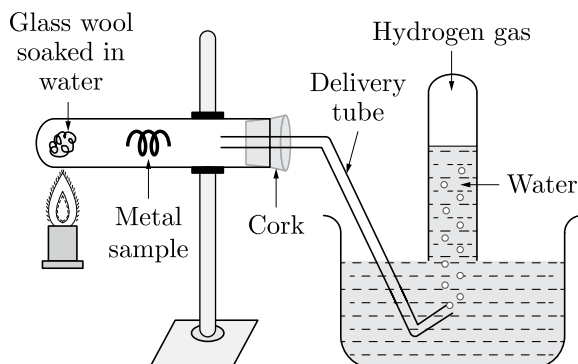
- (a) Gold
- (b) Copper
- (c) Tin
- (d) Sodium

Sol : www.cbse.site/sc/cm75

These metals are more reactive than hydrogen	Potassium	K
	Sodium	Na
	Calcium	Ca
	Magnesium	Mg
	Aluminium	Al
	Zinc	Zn
	Iron	Fe
	Tin	Sn
	Lead	Pb
	[Hydrogen]	[H]
These metals are less reactive than hydrogen.	Copper	Cu
	Mercury	Hg
	Silver	Ag
	Gold	Au
	Platinum	Pt

76. Action of stem on a metal is shown in the

figure.

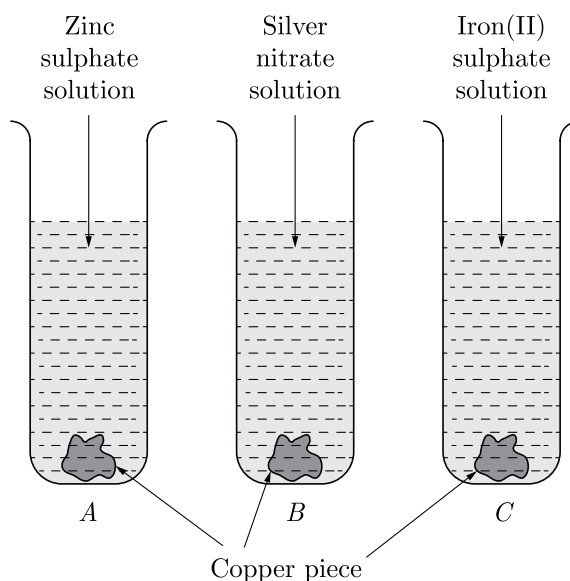


The metal sample in the above experiment is-

- (a) Zinc
- (b) Copper
- (c) Aluminium
- (d) Platinum

Sol : www.cbse.site/sc/cm76

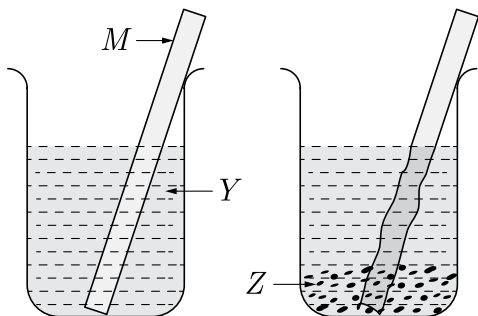
77. Test tubes A, B and C contain zinc sulphate, silver nitrate and iron (II) sulphate solutions respectively as shown in the figure. Copper pieces are added to each test tubes. Blue colour will appear in case of



- (a) Test tube *A*
 (b) Test tube *B*
 (c) Test tube *C*
 (d) All the test tube

Sol : www.cbse.site/sc/cm77

78. A metal rod (*M*) was dipped in a coloured solution (*Y*). After some time it was observed that the metal rod starts dissolving in the solution and the solution starts fading in colour. However, a coloured precipitate (*Z*) was seen at the bottom of the beaker. (*M*), (*Y*) and (*Z*) could be



- (a) $M = \text{Zn}$ $Y = \text{FeSO}_4$ $Z = \text{Fe}$
 (b) $M = \text{Cu}$ $Y = \text{Al}_2(\text{SO}_4)_3$ $Z = \text{Al}$
 (c) $M = \text{Ag}$ $Y = \text{CuSO}_4$ $Z = \text{Cu}$
 (d) $M = \text{Fe}$ $Y = \text{ZnSO}_4$ $Z = \text{Zn}$

Sol : www.cbse.site/sc/cm78

79. What is the chemical formula of the compound formed when ${}_{12}^{24}\text{X}$ combines with ${}_{9}^{19}\text{Y}$?
- (a) XY
 (b) X_2Y
 (c) XY_2
 (d) X_2Y_3

Sol : www.cbse.site/sc/cm79

80. The electronic structures of six elements *A* to *F* are given in the table below :

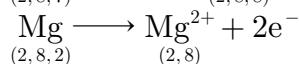
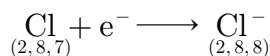
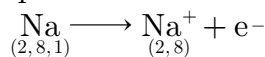
	Electronic structure		Formula of compound
1.	<i>A</i> : 2, 1	<i>B</i> : 2, 6	A_2B
2.	<i>B</i> : 2, 6	<i>C</i> : 2, 7	B_2C
3.	<i>C</i> : 2, 7	<i>D</i> : 2, 8, 3	DC_3
4.	<i>E</i> : 2, 8, 6	<i>F</i> : 2, 8, 8, 2	FE_2

Which of the compounds formed are wrong?

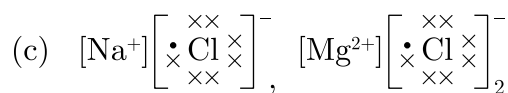
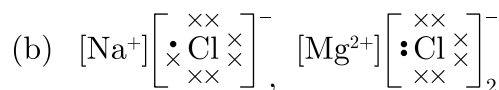
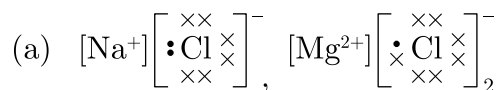
- (a) 1 and 3
 (b) 2 and 3
 (c) 3 and 4
 (d) 2 and 4

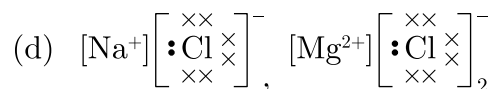
Sol : www.cbse.site/sc/cm80

81. Observe the given reactions and answer the question that follows :



Which of the following are correct representations for the ionic compounds formed of these ions?





Sol : www.cbse.site/sc/cm81

82. metal has highest melting point.

- Tungsten
- Sodium
- Silver
- Copper

Sol : www.cbse.site/sc/cm82

83. Which of the following is correct regarding to metals?

- They have one to three valence electrons
 - They have 4 to 8 valence electrons
 - They are brittle
 - They are capable to form anions easily
- 1 and 2
 - 2 and 3
 - 1
 - 1, 2, 3 and 4

Sol : www.cbse.site/sc/cm83

84. Which of the following only contain non-metals?

- Carbohydrates
- Proteins
- Alloys
- Both (a) and (b)

Sol : www.cbse.site/sc/cm84

85. Which of the following is incorrect regarding to non-metal?

- They are neither malleable nor ductile
- They are brittle
- They are sonorous
- They are poor conductor of heat and

electricity (except graphite)

- 1
- 2 and 3
- 3
- 4 and 1

Sol : www.cbse.site/sc/cm85

86. A student mistakenly used a wet gas jar to collect sulphur dioxide. Which one of the following tests of the gas is likely to fail?

- Odour
- Effect on acidified $\text{K}_2\text{Cr}_2\text{O}_7$ solution
- Solubility test
- None of these

Sol : www.cbse.site/sc/cm86

87. **Assertion :** Nitrate ores are rarely available.

Reason : Bond dissociation energy of nitrogen is very high.

- Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- Both Assertion and Reason are correct but Reason is not the correct explanation of Assertion.
- Assertion is correct and Reason is false.
- Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm87

88. **Assertion :** Metals possess metallic lustre.

Reason : Metals in their pure state, have a shining surface.

- Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

- (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false

Sol : www.cbse.site/sc/cm88

89. Assertion : Metals are said to be sonorous.

Reason : Metals conduct heat and electricity.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm89

90. Assertion : Some metal oxides are amphoteric in nature.

Reason : Metallic oxides show acidic behaviour.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm90

91. Assertion : Sodium displaces copper from its salt solution.

Reason : Reactive metals can displace less reactive metals from their compounds in solution as molten form.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct

explanation of Assertion.

- (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm91

92. Assertion : Ionic compounds are soft solids.

Reason : There is weak molecular forces between particles of ionic compounds.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm92

93. Assertion : An arrangement of metals in decreasing order of their reactivity is called activity series.

Reason : Metals can be differentiated from non metals.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm93

94. Assertion : Alloying is a good method of improving the properties of a metal.

Reason : We can be differentiated from non metals.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm94

95. Assertion : Solder is an alloy of lead and copper.

Reason : It has a high melting point.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm95

96. Assertion : Sodium metal is obtained by electrolytic reduction.

Reason : Sodium is a highly reactive metal.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm96

97. Assertion : Silver articles become black after sometime when exposed to air.

Reason : Silver is very less reactive.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are

true but Reason is not the correct explanation of Assertion.

- (c) Assertion is true but Reason is false.
- (d) Both Assertion and Reason are false.

Sol : www.cbse.site/sc/cm97

98. Assertion : Electrical wires can be made by copper.

Reason : Copper is a good conductor of electricity.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Assertion is false but Reason is true.

Sol : www.cbse.site/sc/cm98

99. Assertion : When zinc is added to a solution of iron (II) sulphate, no change is observed.

Reason : Zinc is less reactive than iron.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Assertion is false but Reason is true.

Sol : www.cbse.site/sc/cm99

100. Assertion : Food cans are coated with zinc and not with tin.

Reason : Zinc is more reactive than tin.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

true but Reason is not the correct explanation of Assertion.

- (c) Assertion is true but Reason is false.
- (d) Assertion is false but Reason is true.

Sol : www.cbse.site/sc/cm100

101. Assertion : Carbon reacts with oxygen to form carbon monoxide which is an acidic oxide.

Reason : Non-metals form acidic oxides.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Assertion is false but Reason is true.

Sol : www.cbse.site/sc/cm101

102. Assertion : Different metals have different reactivities with water and dilute acids.

Reason : Reactivity of a metal depends on its position in the reactivity series.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Assertion is false but Reason is true.

Sol : www.cbse.site/sc/cm102

103. Assertion : Zinc becomes dull in moist air.

Reason : Zinc is coated by a thin film of its basic carbonate in moist air.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

- (c) Assertion is true but Reason is false.
- (d) Assertion is false but Reason is true.

Sol : www.cbse.site/sc/cm103

104. Assertion : Gas bubbles are observed when sodium carbonate is added to dilute hydrochloric acid

Reason : Carbon dioxide is given off in the reaction.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) Assertion is true but Reason is false.
- (d) Assertion is false but Reason is true.

Sol : www.cbse.site/sc/cm104

Don't Take Printout of This File because this is not useful. You can purchase hard book from Amazon. Hard book includes explanation of all MCQs in print form.

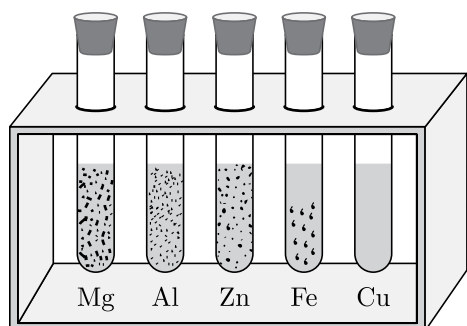
COMPETENCY BASED QUESTIONS

105. Clean small pieces of magnesium, zinc, aluminium, iron and copper by rubbing them with a piece of sand paper. Take them in separate test tubes. Add about 10 mL of

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

dilute hydrochloric acid to each of them.



Identify the correct statements (S).

- The rate of evolution of hydrogen gas bubbles is not same in all the test tubes.
- The rate of formation of bubbles is the fastest in the case of magnesium.
- The reactivity decreases in the order : $Mg > Zn > Al > Fe > Cu$.
- In the case of copper, no bubbles are seen and the temperature also remains unchanged. This shows that copper does not react with dilute HCl.

- (a) 2 and 4
 (b) 3 and 4
 (c) Only 3
 (d) 1, 2 and 4

Sol : www.cbse.site/sc/cm105

- 106.** Four metals A, B, C and D are tested with water steam and dilute hydrochloric acid and its observation is listed below.

Metal	Reaction with water	Reaction with steam	Reaction with dilute
A	No reaction	reaction	reaction
B	No reaction	No reaction	reaction
C	reaction	reaction	reaction
D	No reaction	No reaction	No reaction

Between which two metals should hydrogen be placed in the series?

- (a) A and B
 (b) B and D
 (c) A and C
 (d) C and D

Sol : www.cbse.site/sc/cm106

Direction For Questions (109-110)

Samples of four metals A, B, C and D were taken and added to the following solutions one by one. The results obtained have been tabulated as follows.

Metal	Iron (II) sulphate	Copper (II) sulphate	Zinc sulphate	Silver nitrate
A	No reaction	Displacement		
B	Displacement		No reaction	
C	No reaction	No reaction	No reaction	Displacement
D	No reaction	No reaction	No reaction	No reaction

Use the Table above to answer the following questions about metals A, B, C and D.

- 107.** The most reactive metal is?

- (a) A
 (b) C
 (c) D
 (d) B

Sol : www.cbse.site/sc/cm107

- 108.** The order of reactivity of metals is

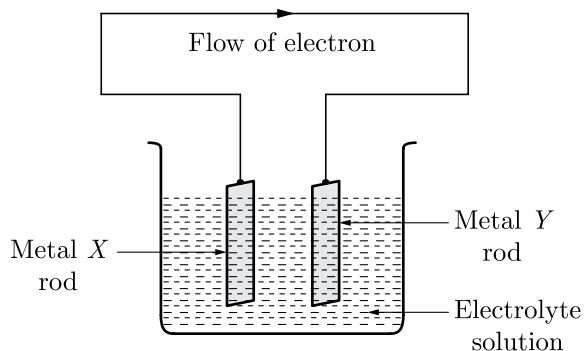
- (a) $B > A > D > C$
 (b) $B > A > C > D$
 (c) $A > B > C > D$
 (d) $D > A > B > C$

Sol : www.cbse.site/sc/cm107

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

109. Mohit arranged two metal rods in electrolyte solution as shown in the figure and electron flows from metal X to metal Y.

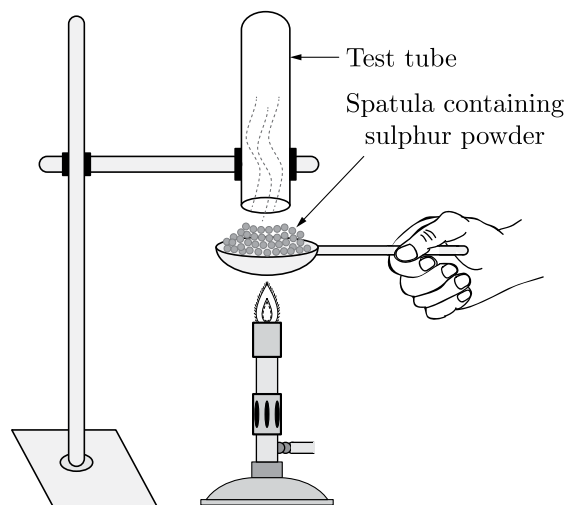


Here, metal X and Y are-

- (a) Copper, Zinc
- (b) Zinc, Silver
- (c) Iron, Aluminium
- (d) Iron, Silver

Sol : www.cbse.site/sc/cm108

110. 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 below.



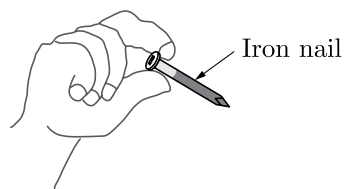
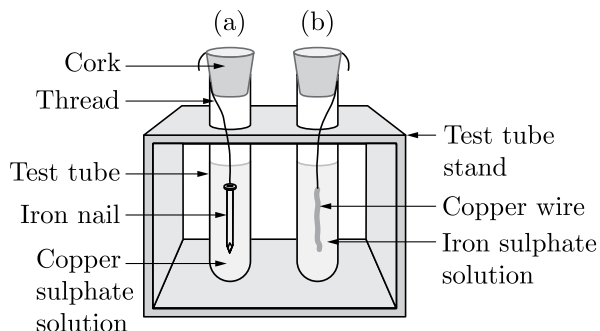
The balance chemical equation for the reaction taking place will be-

- (a) $S + O_2 \rightarrow SO_2$

- (b) $SO_2 + H_2O \rightarrow H_2SO_3$
- (c) $SO_2 + O_2 \rightarrow SO_4$
- (d) Both (a) and (b)

Sol : www.cbse.site/sc/cm109

111. Consider the following figure.



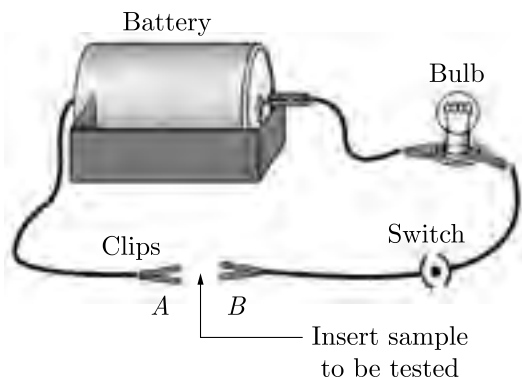
Which of the following reaction take place in first test tube?

- (a) $Fe(s) + CuSO_4(aq) \longrightarrow FeSO_4(aq) + Cu(s)$
- (b) $Fe(s) + CuSO_3(aq) \longrightarrow FeSO_4(aq) + Cu(s)$
- (c) $Fe(s) + CuSO_4(aq) \longrightarrow FeSO_3(aq) + Cu(s)$
- (d) $Fe(s) + CuSO_4(aq) \longrightarrow FeSO_4(aq) + Heat$

Sol : www.cbse.site/sc/cm110

112. A student arrange the battery, bulb, switch

and clips as shown in the figure:

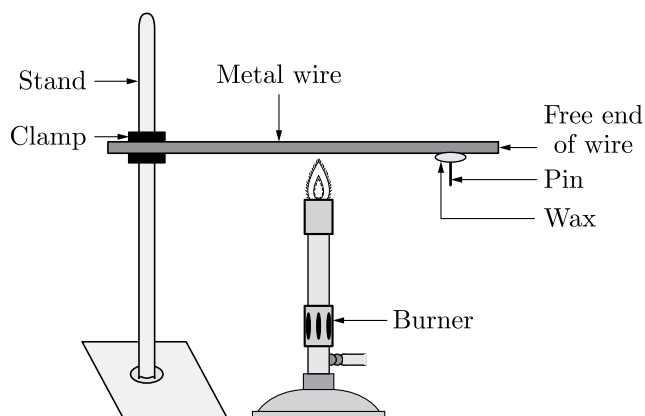


When wire is placed between the terminals A and B. The bulb light up.

1. Copper
 2. Aluminium
 3. Iron
 4. Silver
- (a) 1
(b) 2
(c) 3
(d) All of these

Sol : www.cbse.site/sc/cm111

113. A student arrange the following practical setup-



Which of the following metals can be suitable for the experiment?

1. Iron

2. Gallium
 3. Caesium
 4. Copper
- (a) 1 and 4
(b) 1 and 3
(c) 2 and 3
(d) 2 and 4

Sol : www.cbse.site/sc/cm112

114. A man went door to door posing as 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.

The particular solution is-

- (a) Aqua regia
- (b) NaCl solution
- (c) HCl solution
- (d) Nitric acid solution

Sol : www.cbse.site/sc/cm113

Direction For Questions (117-121)

In chemistry a metal is an element that readily forms positive ions and has metallic bonds. A metal is a material that when freshly prepared, polished or fractured, shows a lustrous appearance and conducts electricity and heat relatively well. Metals are typically malleable or ductile.

The table shows the reaction of different metals with water.

Metal	Reaction with water	Reaction with steam
P	None	Mild
Q	Mild	Vigorous
R	Very slow	Vigorous

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

S	Vigorous	Violent
-----	----------	---------

- (c) Ca
(d) Mg

Sol : www.cbse.site/sc/cm114

115. The current order of increasing reactivity of metals is:

- (a) $P < R < Q < S$
(b) $P < R < S < Q$
(c) $P < Q < R < S$
(d) $S < Q < R < P$

Sol : www.cbse.site/sc/cm114

116. Which metal is indicated by R ?

- (a) Mg
(b) Al
(c) Fe
(d) Cu

Sol : www.cbse.site/sc/cm114

117. Which metal can displace R from its salt solution?

- (a) P
(b) Q
(c) S
(d) Both (b) and (c)

Sol : www.cbse.site/sc/cm114

118. Which metal is likely to be displaced by R ?

- (a) P
(b) Q
(c) R
(d) S

Sol : www.cbse.site/sc/cm114

119. Which one of the following metals do not react with cold as well as hot water?

- (a) Fe
(b) Na

Direction For Questions (122-126)

All existing matter in our surroundings is made up of basic unit known as elements. Elements are classified into two category i.e., metal can non-metal. All metals are electrical conductors. Many of them have a high density and they are usually ductile and malleable. All these properties influence the way the metals are used. Some metals are sonorous and so they are used for special purposes.

120. 'Sonorous' means:

- (a) unique property of non-metals
(b) induce conductivity
(c) having high density
(d) causing sound

Sol : www.cbse.site/sc/cm115

121. Materials that conduct electricity are called:

- (a) metal
(b) bad conductors
(c) insulators
(d) non-metal

Sol : www.cbse.site/sc/cm115

122. Which metal shows ductility?

- (a) Zinc
(b) Lithium
(c) Magnesium
(d) Copper

Sol : www.cbse.site/sc/cm115

- 123.** Property of metal by which it can be drawn into wire is:
(a) ductility
(b) density
(c) malleability
(d) elasticity
- 126.** The metal which is known as strategic metal is
(a) zirconium
(b) titanium
(c) manganese
(d) all of these

Sol : www.cbse.site/sc/cm115

Sol : www.cbse.site/sc/cm116

- 124.** Property of metal by virtue of which it can be beaten into sheets is:
(a) resistivity
(b) ductility
(c) malleability
(d) conductivity
- 127.** Metals can be given different shapes according to our needs because
(a) they are malleable and ductile
(b) they are sonorous
(c) they are generally hard
(d) they have a shining surface

Sol : www.cbse.site/sc/cm115

Sol : www.cbse.site/sc/cm116

Direction For Questions (127-131)

Metals are elements that exhibit a variety of physical properties such as those of malleability, ductility, conductivity of heat and electricity, lustre, etc. Due to such properties, metals find usage in purpose such as cooking utensils, machinery, modes of transportation, construction, etc., in our daily life. Metals such as gold and silver have been used in making jewellery since ancient times. Non-metals have been found to exist in all the three states— solid, liquid and gaseous. They are non-malleable, non-ductile and brittle in nature. Non-metals have very low tensile strength and are easily broken up.

- 125.** Which of the following metal(s) will have very low melting point?
(a) Gallium
(b) Caesium
(c) Copper
(d) Both (a) and (b)

Sol : www.cbse.site/sc/cm116

- 128.** Which of the following non-metal is a good conductor of electricity?
(a) Oxygen
(b) Nitrogen
(c) Graphite
(d) Bromine

Sol : www.cbse.site/sc/cm116

- 129.** Metals produce a metallic sound. This property of metal is called
(a) malleability
(b) sonority
(c) conductivity
(d) ductility

Sol : www.cbse.site/sc/cm116

Direction For Questions (132-136)

Metals react with non-metals by losing or gaining electrons. They have a give-and-take relation between them. Ionic compounds are usually solid and hard in nature. They

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

are generally soluble in water and insoluble in solvent like petrol, kerosene, etc. The melting and boiling points of electrovalent compounds are high. In order to change the physical state of the electrovalent compounds (from solid to liquid to gas), a high temperature is needed to overcome the attractive forces.

- 130.** Which of the following properties is not generally exhibited ionic compounds?
- Electrical conductivity in molten state
 - Electrical conductivity in solid state
 - High melting and boiling points
 - Solubility in water

Sol : www.cbse.site/sc/cm117

- 131.** Electrovalent compounds are usually solid and hard in nature. This is due to
- strong forces of attraction between the oppositely charged ions.
 - weak forces of attraction between the oppositely charged ions.
 - strong forces of attraction between the same charged ions.
 - weak forces of attraction between the similarly charged ions.

Sol : www.cbse.site/sc/cm117

- 132.** Transfer of one or more valence electrons from a metal to non-metal takes place in case of
- chemical bonding
 - molecular bonding
 - ionic bonding
 - covalent bonding

Sol : www.cbse.site/sc/cm117

- 133.** Calcium oxide is formed by losing of

electrons to oxygen atoms, the calcium atom has the number of valence electrons as

- three
- one
- four
- two

Sol : www.cbse.site/sc/cm117

- 134.** The atomic number of four elements *A*, *B*, *C*, *D* are 6, 8, 10 and 12 respectively. The two elements which can react to form ionic compounds are:
- A* and *B*
 - C* and *D*
 - B* and *D*
 - A* and *C*

Sol : www.cbse.site/sc/cm117

Don't Take Printout of This File because this is not useful. You can purchase hard book from Amazon. Hard book includes explanation of all MCQs in print form.


Direction For Questions (137-141)

The reactivity series is a list of metals arranged in the order of their decreasing activities. The metal at the top of the reactivity series is the most reactive and metal at the bottom is the least reactive. The more reactive metal displaces less reactive metal from its salt solution.

Activity series: Relative reactivities of metals

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

K	Potassium		Most reactive
Na	Sodium		
Ca	Calcium		
Mg	Magnesium		
Al	Aluminium		
Zn	Zinc		Reactivity decreases
Fe	Iron		
Pb	Lead		
H	Hydrogen		
Cu	Copper		
Hg	Mercury		
Ag	Silver		
Au	Gold	Least reactive	

Sol : www.cbse.site/sc/cm118

- 138.** Among the following, the correct arrangement of the given metals in ascending order of their reactivity is

Zinc, Iron, Calcium, Potassium

- (a) Zinc < Iron < Calcium < Potassium
 (b) Potassium < Calcium < Iron < Zinc
 (c) Potassium < Zinc < Calcium < Iron
 (d) Potassium < Calcium < Zinc < Iron

Sol : www.cbse.site/sc/cm118

- 139.** Which of the following pair of reactants will give displacement reactions?

- (a) FeSO₄ solution and lead metal
 (b) CuSO₄ solution and silver metal
 (c) NaCl solution and iron metal
 (d) AgNO₃ solution and Copper metal

Sol : www.cbse.site/sc/cm118

- 135.** The metals which react with steam but not with hot water is

- (a) Al, Zn, Fe
 (b) K, Na, Mg
 (c) Ag and Au
 (d) Pb and Cu

Sol : www.cbse.site/sc/cm118

- 136.** Non-metals do not displace hydrogen from acids because

- (a) they are electron donor
 (b) they are electron acceptor
 (c) they have low tensile strength
 (d) they have low density

Sol : www.cbse.site/sc/cm118

- 137.** CO₂(g) + H₂O(l) →

- (a) HCO₃(s)
 (b) H₂CO₃(aq)
 (c) HCO₃(aq)
 (d) H₂CO₃(s)

Direction For Questions (142-146)

Alloying is a very good method of improving the properties of a metal. This gives the desired properties of the metal. For example, iron is the most widely used metal. But it is never used in its pure state. This is because pure iron is very soft and stretches easily when hot. But, if it is mixed with a small amount of carbon (about 0.05%), it becomes hard and strong. When iron is mixed with nickel and chromium, we get stainless steel, which is hard and does not rust. Thus, if iron is mixed with some other substance, its properties change. In fact, the properties of any metal can be changed, if it is mixed with some other substance. The substance added may be a metal or a non-metal.

- 140.** Stainless steel which is used for making

cutlery, surgical instruments, etc., has iron mixed with

- (a) Cu and Au
- (b) Ni and Cu
- (c) Cu and Cr
- (d) Ni and Cr

Sol : www.cbse.site/sc/cm119

141. Which among the following alloys contain non-metal as one of its constituents?

- (a) Brass
- (b) Bronze
- (c) Amalgam
- (d) Steel

Sol : www.cbse.site/sc/cm119

142. Name an alloy of aluminium used in the construction of aircraft.

- (a) Duralumin
- (b) Solder
- (c) Magnalium
- (d) Amalgam

Sol : www.cbse.site/sc/cm119

143. An alloy is a/an

- (a) compound
- (b) element
- (c) homogeneous mixture
- (d) heterogeneous mixture

Sol : www.cbse.site/sc/cm119

144. Which one of the following alloy(s) contains mercury as one of its constituents?

- (a) Stainless steel
- (b) Alnico
- (c) Zinc amalgam
- (d) Solder

Sol : www.cbse.site/sc/cm119

Direction For Questions (147-150)

A metal M reacts vigorously with water to form a solution S and a gas G . The solution S turns red litmus to blue whereas gas G , which is lighter than air, burns with a pop sound. Metal M has a low melting point and is used as a coolant in nuclear reactors.

145. The metal M is:

- (a) Sodium
- (b) Copper
- (c) Iron
- (d) Steel

Sol : www.cbse.site/sc/cm120

146. The solution S is:

- (a) NaCl
- (b) NaOH
- (c) CaCl₂
- (d) CaOH

Sol : www.cbse.site/sc/cm120

147. Here the gas G is:

- (a) Hydrogen
- (b) Oxygen
- (c) Carbon-dioxide
- (d) Nitrogen

Sol : www.cbse.site/sc/cm120

148. Which of the following balanced reaction take place here?

- (a) $\text{Na} + \text{H}_2\text{O} \longrightarrow \text{Na}_2\text{O} + \text{H}_2$
- (b) $2\text{Na} + 2\text{H}_2\text{O} \longrightarrow 2\text{NaOH} + \text{H}_2$
- (c) $2\text{Na} + 2\text{H}_2\text{O} \longrightarrow \text{Na}_2\text{O}_2 + \text{O}_2$
- (d) $\text{Na} + \text{H}_2\text{O} \longrightarrow \text{Na}_2\text{O}_2 + \text{H}_2$

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969

Sol : www.cbse.site/sc/cm120

- (c) Copper
- (d) Potassium

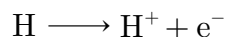
Sol : www.cbse.site/sc/cm121

□□□□□□

Direction For Questions (151-153)

The arrangement of metals in a vertical column in the decreasing order of their reactivities is called the reactivity series or activity series of metals. The most reactive metal is at the top position of the reactivity series. The least reactive metal is at the bottom of the reactivity series.

Hydrogen, though a non-metal, has been included in the activity series of metals only for comparison. Apart from it, the hydrogen atom also has tendency to lose its valence electron and form cation like the behaviour shown by metals. Thus,



149. Which of the following metal can be displaced by copper from its salt solution?
- (a) Mg
 - (b) Ag
 - (c) Fe
 - (d) None of these

Sol : www.cbse.site/sc/cm121

150. An element X after reacting with acids liberate hydrogen gas and can displace lead and tin from their salt solution. Here X is:
- (a) Sodium
 - (b) Iron
 - (c) Copper
 - (d) Nickel

Sol : www.cbse.site/sc/cm121

151. Which of the following is the most reactive metal?
- (a) Sodium
 - (b) Iron

Don't Take Printout of This File because this is not useful. You can purchase hard book from Amazon. Hard book includes explanation of all MCQs in print form.

To Purchase Hard Book of From Amazon Click Here.

For More Details Whatsapp at 8905629969