OPEN STUDENT FOUNDATION
STD 10 : SCIENCE
IMPORTANT QUESTION DAY 3

CHAPTER:3 **Date : 23/02/24**

Section A

● **Write the answer of the following questions. [Each carries 1 Mark]** **[20]**

1. During anodizing, a clean aluminium article is made the anode and is electrolyzed with dilute .....
2. If one of the metals in an alloy is mercury then the alloy is known as an .....
3. $2Zns(s) + 3O_2(g) \xrightarrow{\Delta} 2ZnO(s) + 2SO_2(g)$ reaction is a chemical reaction shown during .....
4. Common formula of ore known as Cinnabar is.....
5. ..... is a strong corrosive fuming liquid which dissolves gold.
6. Brass is useful for welding of electrical wires with each other.
7. Electrocovalent compounds are soluble in water and also soluble in solvents like kerosene and petrol.
8. By keeping silver metals in air it reacts with sulphur present in air, silver sulphide layer will be formed.
9. Solder is an alloy of zinc and nickel, which has low melting point and very useful for welding of electrical wire.
10. Metal oxides which react with acid and base both and form salt and water. It is called amphoteric oxide.
11. Which of the following is not a ionic compound ?
    (A) $CaCl_2$ (B) $MgCl_2$ (C) NaCl (D) CCl_4
12. Which of the following metal is present in Anode mud during electrical zonal refining of copper ?
    (A) Sodium (B) Aluminium (C) Gold (D) Iron
13. Which is the alloy of copper and zinc (Cu + Zn) ?
    (A) Brass (B) Bronze (C) Solder (D) Steel
14. Which metal does not burn by burning but forms a black coloured oxide layer on hot metal ?
    (A) Copper (B) Aluminium (C) Iron (D) Zinc
15. Which of the following metals has the low melting point ?
    (A) Gallium (Ga) (B) Caesium (C) (A) & (B) both (D) Aluminium (Al)
16. Write reactions occuring during electrolytic refining of Alumina (Al_2O_3).
17. Give names of 3 non-metallic oxides which are neither acidic nor basic but neutral ?
18. What is meant by 22 carat gold ?
19. How is stainless steel obtained ?
20. Which metals react with dil HNO_3 and produce H_2 gas ?

Section B

● **Write the answer of the following questions. [Each carries 2 Marks]** **[16]**

21. What is meant by enrichment of ores ?
22. Explain with reason : Why the hydrogen gas is not produced by reaction of metals with Nitric acid ?
23. In the electrolytic refining of a metal M, what would you take as the anode, the cathode and the electrolyte ?
24. 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.

25. Give reasons why copper is used to make hot water tanks and not steel (an alloy of iron).

26. Why is sodium kept immersed in kerosene oil ?

27. What would you observe when zinc is added to a solution of iron (II) sulphate ? Write the chemical reaction that takes place.

28. 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 case will you find displacement reactions taking place ?

Section C

● **Write the answer of the following questions.** [Each carries 3 Marks] **[18]**

29. What are alloys ? Explain with example.

30. How are metals extracted lying at the top of activity series ? Explain.

31. Mention the reduction method to obtain metals from their compounds.What is thermit reaction ?

32. Explain : How copper and mercury are extracted from their minerals ?

33. Explain what is roasting and calcination ? Explain with example.

34. How is NaCl formed on the basis of electronic configuration of elements ? Explain.

Section D

● **Write the answer of the following questions.** [Each carries 4 Marks] **[8]**

35. What happens when metals react with water ? Explain with example.

36. Explain properties of ionic compounds by proper experiment.

CHAPTER:3

OPEN STUDENT FOUNDATION
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IMPORTANT QUESTION DAY 3

Date : 23/02/24

Section [A] : 1 Marks Questions					
No	Ans	Chap	Sec	Que	Universal_QueId
1.	-	Chap 3	S4	27	QP23P11B1012_P1C3S4Q27
2.	-	Chap 3	S4	28	QP23P11B1012_P1C3S4Q28
3.	-	Chap 3	S4	21	QP23P11B1012_P1C3S4Q21
4.	-	Chap 3	S4	19	QP23P11B1012_P1C3S4Q19
5.	-	Chap 3	S4	13	QP23P11B1012_P1C3S4Q13
6.	-	Chap 3	S5	5	QP23P11B1012_P1C3S5Q5
7.	-	Chap 3	S5	14	QP23P11B1012_P1C3S5Q14
8.	-	Chap 3	S5	20	QP23P11B1012_P1C3S5Q20
9.	-	Chap 3	S5	22	QP23P11B1012_P1C3S5Q22
10.	-	Chap 3	S5	9	QP23P11B1012_P1C3S5Q9
11.	D	Chap 3	S6	38	QP23P11B1012_P1C3S6Q38
12.	D	Chap 3	S6	34	QP23P11B1012_P1C3S6Q34
13.	A	Chap 3	S6	31	QP23P11B1012_P1C3S6Q31
14.	A	Chap 3	S6	19	QP23P11B1012_P1C3S6Q19
15.	C	Chap 3	S6	9	QP23P11B1012_P1C3S6Q9
16.	-	Chap 3	S7	42	QP23P11B1012_P1C3S7Q42
17.	-	Chap 3	S7	38	QP23P11B1012_P1C3S7Q38
18.	-	Chap 3	S7	34	QP23P11B1012_P1C3S7Q34
19.	-	Chap 3	S7	22	QP23P11B1012_P1C3S7Q22
20.	-	Chap 3	S7	8	QP23P11B1012_P1C3S7Q8

Section [B] : 2 Marks Questions					
No	Ans	Chap	Sec	Que	Universal_QueId
21.	-	Chap 3	S1	24	QP23P11B1012_P1C3S1Q24
22.	-	Chap 3	S1	15	QP23P11B1012_P1C3S1Q15
23.	-	Chap 3	S3	8	QP23P11B1012_P1C3S3Q8
24.	-	Chap 3	S3	13	QP23P11B1012_P1C3S3Q13
25.	-	Chap 3	S3	16	QP23P11B1012_P1C3S3Q16
26.	-	Chap 3	S8	2.1	QP23P11B1012_P1C3S8Q2.1
27.	-	Chap 3	S8	2.5	QP23P11B1012_P1C3S8Q2.5
28.	-	Chap 3	S8	5.1	QP23P11B1012_P1C3S8Q5.1

Section [C] : 3 Marks Questions					
No	Ans	Chap	Sec	Que	Universal_QueId
29.	-	Chap 3	S1	33R	QP23P11B1012_P1C3S1Q33R
30.	-	Chap 3	S1	28	QP23P11B1012_P1C3S1Q28
31.	-	Chap 3	S1	27	QP23P11B1012_P1C3S1Q27
32.	-	Chap 3	S1	25R	QP23P11B1012_P1C3S1Q25R
33.	-	Chap 3	S1	26R	QP23P11B1012_P1C3S1Q26R
34.	-	Chap 3	S1	18	QP23P11B1012_P1C3S1Q18

Section [D] : 4 Marks Questions					
No	Ans	Chap	Sec	Que	Universal_QueId
35.	-	Chap 3	S1	12R	QP23P11B1012_P1C3S1Q12R
36.	-	Chap 3	S1	20	QP23P11B1012_P1C3S1Q20

CHAPTER:3

OPEN STUDENT FOUNDATION
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IMPORTANT QUESTION DAY 3

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Section A

● **Write the answer of the following questions.** [Each carries 1 Mark] **[20]**

1. During anodizing, a clean aluminium article is made the anode and is electrolyzed with dilute .....

➠ sulphuric acid

2. If one of the metals in an alloy is mercury then the alloy is known as an .....

➠ amalgam

3. $2Zns(s) + 3O_2(g) \xrightarrow{\Delta} 2ZnO(s) + 2SO_2(g)$ reaction is a chemical reaction shown during .....

➠ Calcination

4. Common formula of ore known as Cinnabar is.....

➠ HgS (Mercury sulphide)

5. ..... is a strong corrosive fuming liquid which dissolves gold.

➠ Aqua-regia

6. Brass is useful for welding of electrical wires with each other.

➠ False

7. Electrocovalent compounds are soluble in water and also soluble in solvents like kerosene and petrol.

➠ False

8. By keeping silver metals in air it reacts with sulphur present in air, silver sulphide layer will be formed.

➠ True

9. Solder is an alloy of zinc and nickel, which has low melting point and very useful for welding of electrical wire.

➠ False

10. Metal oxides which react with acid and base both and form salt and water. It is called amphoteric oxide.

➠ True

11. Which of the following is not a ionic compound ?

(A) $CaCl_2$ (B) $MgCl_2$ (C) NaCl (D) CCl_4

Ans. **(D) CCl_4**

12. Which of the following metal is present in Anode mud during electrical zonal refining of copper ?

(A) Sodium (B) Aluminium (C) Gold (D) Iron

Ans. **(D) Iron**

13. Which is the alloy of copper and zinc (Cu + Zn) ?

(A) Brass (B) Bronze (C) Solder (D) Steel

Ans. **(A) Brass**

14. Which metal does not burn by burning but forms a black coloured oxide layer on hot metal ?

(A) Copper (B) Aluminium (C) Iron (D) Zinc

Ans. **(A) Copper**

15. Which of the following metals has the low melting point ?

(A) Gallium (Ga) (B) Caesium (C) (A) & (B) both (D) Aluminium (Al)

Ans. **(C) (A) & (B) both**

16. Write reactions occuring during electrolytic refining of Alumina (Al_2O_3).

➠ $2AlO_3(l) \xrightarrow{\text{Electric current}} 4Al^{3+} + 6O^{2-}$
(molten) (molten)

➠ Cathode : $4Al^{3+} + 12e^- \xrightarrow{\text{Reduction}} 4Al(s)$
Anode : $6O^{2-} \xrightarrow{\text{Oxidation}} 3O_2(g) + 12e^-$

17. Give names of 3 non-metallic oxides which are neither acidic nor basic but neutral ?

➠ Carbon monoxide (CO), Nitric oxide (NO), water (H_2O).

18. What is meant by 22 carat gold ?

➠ 22 carat gold means 22 part of pure gold and 2 parts of copper or silver mixture.

19. How is stainless steel obtained ?

➠ Stainless steel can be obtained by mixing Iron with Nickel and Chromium.

20. Which metals react with dil HNO_3 and produce H_2 gas ?

➠ Magnesium (Mg) and Manganese (Mn)

Section B

● **Write the answer of the following questions. [Each carries 2 Marks]** **[16]**

21. What is meant by enrichment of ores ?

➠ Ores mined from the earth are usually contaminated with large amounts of impurities such as soil, sand etc called gangue.

➠ Means ore is contaminated with gangue.

➠ As a result, the impurities must be removed from the ore prior to the extraction of the metal.

➠ The processes used for removing the gangue from the ore are based on the differences between the physical or chemical properties of the gangue and the ore.

➠ Various separation technique are accordingly employed.

22. Explain with reason : Why the hydrogen gas is not produced by reaction of metals with Nitric acid ?

➠ When metals react with Nitric acid hydrogen gas is not produced because Nitric acid is a strong oxidising agent. Therefore it oxidises H_2 and produces water and gets reduced in any Nitrogen Oxide like (N_2O, NO, NO_2).

➠ But Magnesium and Manganese react with very dilute Nitric acid and produces H_2 gas.

23. In the electrolytic refining of a metal M, what would you take as the anode, the cathode and the electrolyte ?

➠ For electrolytic refining of M.

Anode : Impure metal M (Positively charged electric pole)

Cathode : (Negatively charged electric pole) Pure metal M Rod.

Electrolyte : Aqueous solution of salt M.

24. 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.

➠ Copper metal surface reacts with air and basic copper carbonate layer is formed on it.

$2Cu(s) + O_2(g) + H_2O(l) + CO_2(g) \rightarrow CuCO_3 \cdot Cu(OH)_2(s)$

copper components of air (basic) copper carbonate

➠ Such basic copper carbonate layer forming on the surface of copper metal is insoluble in water, so it can not be cleaned with only water. But it is soluble in acid. As per that lemon possess citric acid, tamarind possess tartric acid or other any sour substances which contain acid, can be considered effective to clean such utensils.

➠ This type of acid or base makes copper carbonate neutral and makes this type of layer soluble. Therefore tarnished copper utensils are cleaned with lemon or tamarind juice and are made them lustrous.

25. Give reasons why copper is used to make hot water tanks and not steel (an alloy of iron).

➠ Iron is more reactive than copper, when it comes in contact with water vapour, forms Fe_3O_4 (Iron oxide) in hot water.

$3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + H_2O(l)$

Iron Iron oxide

➠ $Cu(s) + H_2O \rightarrow$ No reaction.

➠ Therefore copper (Cu) is used to make hot water tanks but steel is not used.

26. Why is sodium kept immersed in kerosene oil ?

➠ Sodium reacts very strongly with Air (O_2). If it is kept in open it catches fire. So to keep it safe and prevent it from fire, it is kept immersed in kerosene oil.

27. What would you observe when zinc is added to a solution of iron (II) sulphate ? Write the chemical reaction that takes place.

➠ Zinc is more reactive than iron. Therefore it displaces iron from iron sulphate solution. As a result green colour of the solution disappears and Iron metal gets deposited.

$Zn(s) + FeSO_4(aq) \rightarrow ZnSO_4(aq) + Fe(s)$

Zinc Iron (II) sulphate (green) Zinc sulphate depositing Iron

28. 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 case will you find displacement reactions taking place ?

➠ No reaction : No and reaction takes place : Yes

Metal	Zinc	Magnesium	Copper
Zinc oxide (ZnO)	No	Yes	No
Magnesium oxide (MgO)	No	No	No
Copper oxide (Cu_2O)	Yes	Yes	No

Section C

● **Write the answer of the following questions. [Each carries 3 Marks]** **[18]**

29. What are alloys ? Explain with example.

➠ Alloying is a very good method of improving the properties of a metal.

➠ During the process of obtaining alloys, metal with desired properties can be obtained. 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 it becomes hard and strong.
- Similarly 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. An alloy is a homogeneous mixture of two or more metals or a metal and a non-metal.
- It is prepared by first melting the primary metal and then dissolving the other elements in it in definite proportions. It is then cooled to room temperature.
- If one of the metals is mercury then the alloy is known as an amalgam.
- The electrical conductivity and melting point of an alloy is less than that of pure metals.

(1) Brass : An alloy of copper and zinc (Cu and Zn)

Bronze : An alloy of copper and tin (Cu and Sn)

- Here brass and bronze are not good conductors of electricity whereas copper is used for making electrical circuit.

(2) Solder : It is an alloy of lead and tin (Pb and Sn) and has a low melting point and is used for welding electrical wires together.

30. How are metals extracted lying at the top of activity series ? Explain.

- The metals high up in the reactivity series are very reactive. They can not be obtained from their compounds by heating with carbon. For example carbon cannot reduce the oxides of sodium, magnesium, calcium, aluminium etc to the respective metals.
- This is because these metals have more affinity for oxygen than carbon. These metals are obtained by electrolytic reduction.
- For example : (1) Sodium, magnesium and calcium are obtained by electrolysis of their molten chlorides.
- The metals are deposited at the cathode (the negatively charged electrodes) whereas chlorine is liberated at the anode (the positively charged electrode).
- The reactions occuring during electrolysis.

Ionization process : $NaCl(l) \rightarrow Na^{+} + Cl^{-}$

At cathode : $Na^{+} + e^{-} \rightarrow Na$ (Reduction)

At Anode : $2Cl^{-} \rightarrow Cl_2 + 2e^{-}$ (Oxidation)

(2) Similarly Aluminium is obtained by the electrolytic reduction of aluminium oxide.

Ionization process : $Al_2O_3(l) \rightarrow 2Al^{+3} + 3O^{-2}$

At cathode : $Al^{3+} + 3e^{-} \rightarrow Al(l)$ (Reduction)

At Anode : $O^{-2} \rightarrow \frac{1}{2}O_2(g) + 2e^{-}$ (Oxidation)

31. Mention the reduction method to obtain metals from their compounds.What is thermit reaction ?

- Generally the metals which cannot be oxidised in metals from metal oxide using carbon (coke), such

metals to be obtained in their compounds. The method which is used is called as reduction method.

- Besides using carbon (coke) to reduce metal oxides to metals sometimes displacement reactions can also be used.
- The highly reactive metals such as sodium, calcium, aluminium etc are used as reducing agents because they can displace metals of lower reactivity from their compounds.
- For example, when manganese dioxide is heated with aluminium powder, following reaction takes place.

$3MnO_2(s) + 4Al(s) \rightarrow 3Mn(l) + 2Al_2O_3(s) + heat$
Manganese dioxide aluminium oxide

- Such displacement reactions are highly exothermic. The amount of heat evolved is so large that the metals

Thermit process for joining railway tracks

are produced in the molten state.

- In fact the reaction of iron (III) oxide (Fe_2O_3) with aluminium is used to join railway tracks or cracked machine parts. This reaction is known as the thermit

reaction.

- The chemical reaction occuring during thermit reaction.

$Fe_2O_3(s) + 2Al(s) \rightarrow 2Fe(l) + Al_2O_3(s) + heat$
Iron (III) oxide aluminium Iron aluminium oxide

32. Explain : How copper and mercury are extracted from their minerals ?

- Metals lying low in the activity series are very unreactive.
- The oxides of these metals can be reduced into metals by heating alone. E.g.,

(i) Cinnabar (HgS) is an ore of mercury, when it is heated it is converted into mercuric oxide (HgO)

- Mercuric oxide is then reduced to mercury on further heating.

$2HgS(s) + 3O_2(g) \xrightarrow{heat} 2HgO(s) + 2SO_2(g)$
Mercury sulphide Mercury oxide
(Cinnabar mineral)

$2HgO(s) \xrightarrow{heat} 2Hg(l) + O_2(g)$
Mercury oxide Mercury

(ii) Similarly copper which is found as Cu_2S in nature can be obtained from its ore by just heating in air.

There after Cuprous oxide is then reduced to copper on further heating.

$2Cu_2S + 3O_2(g) \xrightarrow{heat} 2Cu_2O(s) + 2SO_2(g)$

Cuprous sulphide — Cuprous oxide

$2Cu_2O + Cu_2S \xrightarrow{heat} 6Cu(s) + SO_2(g)$

Cuprous oxide — Copper metal

33. Explain what is roasting and calcination ? Explain with example.

- The metals lying in the middle of the activity series such as iron, zinc, lead, copper are moderately reactive.
- These are usually present as sulphides or carbonates in nature.
- It is easier to obtain a metal from its oxide as compared to its sulphides and carbonates. Therefore prior to reduction the metal sulphides and carbonates must be converted into metal oxides.
- Roasting : The sulphide ores are converted into oxides by heating strongly in the presence of excess air. This is known as roasting.
- Calcination : The carbonate ores are changed into oxides by heating strongly in limited air. This process is known as calcination. E.g., The chemical reaction that takes place during roasting and calcination of zinc ores can be shown as follows :
- Roasting : $2ZnS(s) + 3O_2(g) \xrightarrow{\Delta} 2ZnO(s) + 2SO_2(g)$

  zinc sulphide — zinc oxide
- Calcination : $ZnCO_3(s) \xrightarrow{\Delta} ZnO(s) + CO_2(g)$

  zinc carbonate — zinc oxide
- The metal oxides are then reduced to the corresponding metals by using suitable reducing agents such as carbon. It is reduced to metallic zinc.

$ZnO(s) + C(s) \rightarrow Zn(s) + CO(g)$

zinc oxide — zinc metal

34. How is NaCl formed on the basis of electronic configuration of elements ? Explain.

- Following table shows electronic configuration of some elements.

Table : Electronic configuration of some elements

Type of element	Element	Atomic number	Number of electrons in shells			
			K	L	M	N
Noble gases	Helium (He)	2	2			
	Neon (Ne)	10	2	8		
	Argon (Ar)	18	2	8	8	
Metals	Sodium (Na)	11	2	8	1	
	Magnesium (Mg)	12	2	8	2	
	Aluminium (Al)	13	2	8	3	
	Potassium (K)	19	2	8	8	1
	Calcium (Ca)	20	2	8	8	2
Non-metals	Nitrogen (N)	7	2	5		
	Oxygen (O)	8	2	6		
	Fluorine (F)	9	2	7		
	Phosphorus (P)	15	2	8	5	
	Sulphur (S)	16	2	8	6	
	Chlorine (Cl)	17	2	8	7	

➠ We can see from the table that a sodium atom has one electron in its outermost shell. If it loses the electron from its M shell then it is L shell now becomes the outermost shell and that has a stable octet.

➠ The nucleus of this atom still has 11 protons but the number of electrons has become 10. So there is a positive charge giving us a sodium cation Na^+.

➠ On the other hand chlorine has seven electrons in its outermost shell and it requires one more electron to complete its octet.

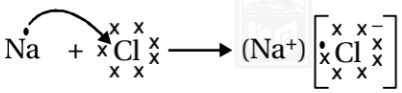
➠ But if sodium and chlorine were to react, the electron test by sodium could be taken up by chlorine.

➠ Thus after gaining electron, the chlorine atom gets a unit negative charge because its nucleus has 17 protons and there are 18 electrons in its K, L and M shell. This gives us a chlorine anion Cl^-.

➠ So both these elements can have a give and take relation between them.

$Na \rightarrow Na^+ + e^-$ | $Cl + e^- \rightarrow Cl^-$

2, 8, 1 — 2, 8 (Sodium cation) | 2, 8, 7 — 2, 8, 8 (Chloride anion)



Formation of sodium chloride

➠ Thus sodium and chloride ions being oppositely charged attract each other and are held by strong electrostatic forces of attraction to exist as sodium chloride (NaCl).

Section D

● **Write the answer of the following questions.** [Each carries 4 Marks] **[8]**

35. What happens when metals react with water ? Explain with example.

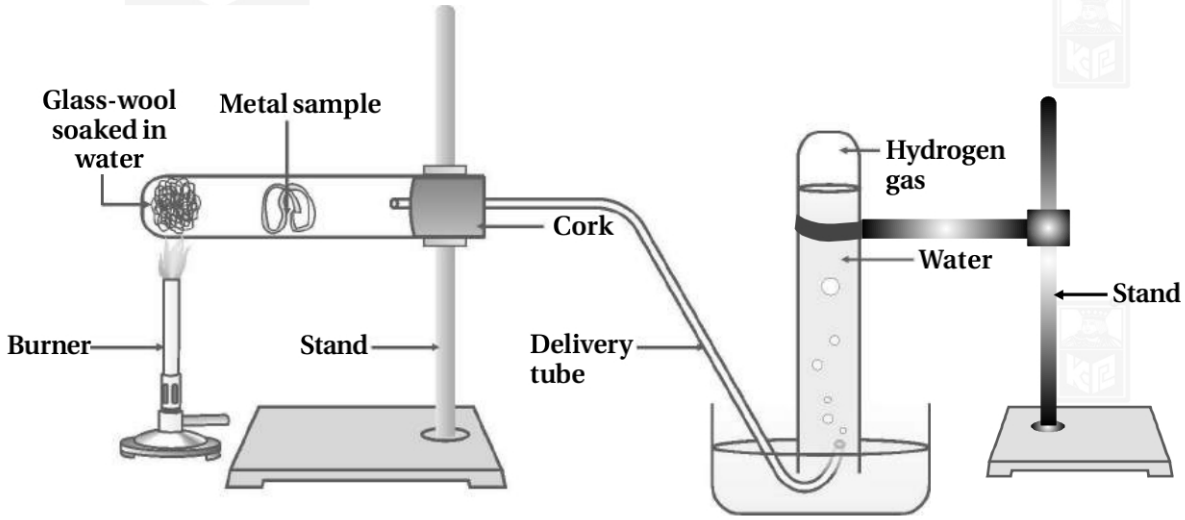
➠ The explanation of reaction of metals with water can be given by following activity / experiment :

➠ First of all small pieces of metals like Aluminium, Copper, Iron, Lead, Magnesium, Zinc, Potassium, Sodium are collected.

➠ Then put small pieces of the samples separately in beakers half-filled with cold water.

➠ Put the metals that did not react with cold water in beakers half-filled with hot water.

➠ But during this for the metals that did not react with hot water, arrange the apparatus as shown in figure and observe their reaction with steam.



Action of steam on a metal

➠ Answers of following questions obtained on the basis of experiment / activity.

➠ Which metals react with cold water ? Arrange them in ascending order of reactivity with cold water.

- Does any metal produce fire on water ?
- Does any metal start floating after sometime ?
- Which metal does not react even with vapour ?

➠ On that basis metals are arranged in the decreasing order of reactivity with water.

➠ Observation : It is observed on the basis of given activity \ experiment that potassium (K), Sodium (Na) and Calcium (Ca) react with water.

➠ Sodium (Na) and potassium (K) produces fire on water.

➠ Calcium (Ca) and Magnesium (Mg) like metals start floating after sometime.

➠ Metals like Aluminium (Al), Iron (Fe) and (Zn) zinc react with vapour.

➠ Copper (Cu) doesn't react with vapour.

➠ Conclusion : Thus it can be concluded from the given activity / experiment that metals react with water and produces metal oxide and Hydrogen gas. Metal oxide which is soluble in water, dissolves in it and forms metal hydroxide. But all metals do not react with water. Like wise,

$$\text{Metal} + \text{water} \rightarrow \text{Metal oxide} + \text{Hydrogen}$$
$$\text{Metal oxide} + \text{water} \rightarrow \text{Metal hydroxide}$$

➠ Thus descending order of reactivity of metals with water is : K > Na > Ca > Mg > Al > Zn > Fe > Cu

36. Explain properties of ionic compounds by proper experiment.

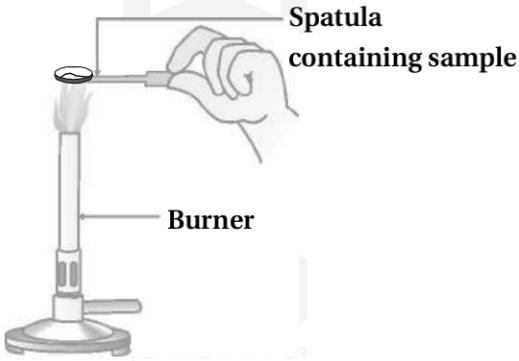
➠ The properties of ionic compounds are explained by following activity / experiment.

➠ Take samples of sodium chloride, potassium iodide, barium chloride or any other salt from the science laboratory.

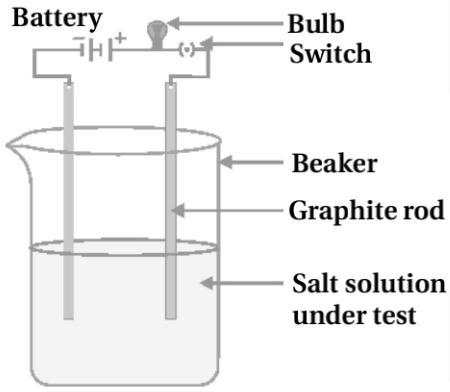
➠ Take a small amount of a sample on a metal spatula and heat directly on the flame.

➠ Repeat this process with other samples of salt.

➠ Then these samples are dissolved in water, petrol and kerosene.



Heating a salt sample on a spatula



Testing the conductivity of a salt solution

➠ Finally make a circuit as shown in the figure and insert the electrodes into a solution of one salt. Answer of the following question given.

- What is the physical state of these salts ?
- Do these samples give colour to flame ? Do these compounds melt ?
- Are these samples are soluble in water, petrol and kerosene ?
- Does the bulb glow by passing electric current ?
- What is your observation ?

➠ Observation : It can be observed from the given activity / experiment that salt samples are solids and each salt gives definite colour to flame. All salts are soluble in water, but do not become soluble in petrol or kerosene. Bulb glows by passing electric current. Given all compounds show that they are ionic in nature.

➠ Conclusion : It can be concluded from given activity / experiment that :

(i) Generally ionic compounds are solid and slightly hard.

(ii) They give specific colour of flame.

(iii) They are soluble in polar solvent like water and insoluble in non-polar solvent like kerosene, petrol.

(iv) They melt and their aqueous solution conduct electric current.

➠ Following table shows melting point and boiling point.

Table : Melting point and boiling point of some ionic compounds

Ionic compound	Melting point (K)	Boiling point (K)
NaCl	1074	1686
LiCl	887	1600
$CaCl_2$	1045	1900
CaO	2850	3120
$MgCl_2$	981	1685